NOV 16 1925

Teachers College RECORD

Vol. XXVII, No. 3 November 1925

CONTENTS

Standard Test Lessons in Reading
William A. McCall and Lelah Mae Crabbs 183

Professionalized Subject Matter in Arithmetic for Normal Schools . . *Clifford Brewster Upton* 192

A Partial Bibliography on Curricula
Thomas H. Briggs 205

The Making of a Course of Study in Health for a Specific Situation
Thomas D. Wood and Ruth Strang 224

New Studies in Education 248

College News 255

Alumni Activities 268

BUREAU OF PUBLICATIONS
TEACHERS COLLEGE, COLUMBIA UNIVERSITY
NEW YORK CITY

$2.50 a Year. 30 Cents a Copy

TEACHERS COLLEGE RECORD

VOL. XXVII, No. 3 NOVEMBER 1925

JAMES E. RUSSELL, *Editor*
Dean of Teachers College

CLYDE J. TIDWELL, *Managing Editor*
Director, Bureau of Publications

THE TEACHERS COLLEGE RECORD is issued ten times a year, monthly except July and August. The subscription price is $2.50 per year; foreign postage, 50 cents; Canadian postage, 30 cents. Single numbers are 30 cents each, postpaid.

Publication office, Federal and 19th Streets, Camden, N. J. Editorial and general offices, 525 West 120th Street, New York City.

Make money orders payable to TEACHERS COLLEGE and address all orders to TEACHERS COLLEGE RECORD, 525 WEST 120TH STREET, NEW YORK.

NOTICE TO SUBSCRIBERS: Notify the TEACHERS COLLEGE RECORD promptly of any change of address; otherwise copies lost in transit will not be duplicated.

Application for transfer of entry as second class matter from post office at New York, N. Y., to post office at Camden, N. J., pending. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on August 6, 1918.

Copyright, 1925, by TEACHERS COLLEGE, Columbia University.

A SCHOOL DICTIONARY

By

HARRY MORGAN AYRES
Associate Professor of English
Columbia University

A wholly new school dictionary by a recognized authority on the English language, compiled and edited from the angle of school needs, and meeting these needs in every particular in the most simple yet complete way.

It includes every word likely to occur in school work, it defines each word clearly and completely, and it employs a thoroughly understandable system of pronunciation marking. The easy legibility of the type, the dark full face of the head words, the omission of confusing data, and the unusually informative illustrations make this a superior text from the mechanical standpoint alone.

For grammar grades and junior high schools

Silver, Burdett and Company

New York Newark Boston Chicago San Francisco

TEACHERS COLLEGE RECORD

VOL. XXVII NOVEMBER 1925 NO. 3

STANDARD TEST LESSONS IN READING

By WILLIAM A. McCALL
Associate Professor of Education, Teachers College

AND LELAH MAE CRABBS
Lecturer in Elementary Education, Teachers College

CARLYLE states that all the school does for a child from the kindergarten through the university is to teach him how to read. Though there is much truth in what Carlyle says, relatively little attention has been given to methods of teaching silent reading beyond the very early stages. Consequently, one of the authors has been conducting a series of experiments for nearly ten years in order to discover more effective methods of teaching reading comprehension in grades three through eight. The earlier experiments proved disappointing, but later ones yielded highly satisfactory results.

The Standard Test Lessons in Reading,[1] the final products of these years of experimentation, will give to pupils a rate of speed and power of comprehension exceeding that yielded by ordinary methods of teaching silent reading. This conclusion is based upon the results of an experiment conducted by the author mentioned, which experiment was followed by a check experiment conducted independently of this author. Approximately one thousand pupils were involved in each experiment, half being experimental pupils and half control pupils. The experimental pupils used test lessons and the control pupils were taught in the usual manner. In both speed and comprehension, the experimental pupils gained nearly twice as much as the control pupils. The pupils who use the Standard Test Lessons in Reading should grow in reading ability even faster, for these standard test lessons were prepared more carefully than were those used in the experiments. They were constructed and criticized by twenty experts in testing or teaching or both.

[1] Published by Bureau of Publications, Teachers College, Columbia University.

These standard test lessons plus the directions for their use have been prepared to accomplish the following for the pupils who use them.

1. *Teach them how to comprehend rapidly all kinds of reading material.* The test lessons are about animals, plants, people, city life, farm life, games, and many other things. They are in the form of stories, fables, poems, informational selections, directions to be followed, and the like.

2. *Help them enjoy their reading lesson.* Almost every lesson is about things of immediate interest to children. In addition, a strong interest is derived from the test feature of each lesson.

3. *Make it easier for them to learn their other lessons.* Every subject should benefit from an increase in general reading ability but dependence is not placed on this general improvement solely. Some of the lessons give direct training in ability to read, for example, history material and arithmetic problems.

4. *Test and teach them at the same time.* Every lesson is a test and every test is a lesson. Every test will show when the pupil is reading correctly and when he is not. It also shows *where* the pupil is not reading correctly. This gives the teacher his teaching opportunity at a time when each test is being scored, and when the children's interest is at a maximum.

5. *Test them with a standard test.* Not only is every test a lesson, but every test is a standard test; that is, it shows how well the normal or typical pupil would read these same lessons. Hence each lesson becomes an interesting contest with other pupils in the class, with thousands of pupils in other classes and schools, and with a pupil's own past record the day, week, month or year before.

6. *Automatically indicate their proper grade classification in reading.* The score for each test lesson is in a form which shows a pupil's proper grade location in reading in a typical school. By averaging the scores for a series of lessons a very reliable grade placement can be determined.

7. *Teach them how to read carefully and accurately.* Each selection they read is followed by questions with alternative answers. Some of these are so worded that the pupils must learn to read very carefully or their answers will not be correct. Careless reading will make their scores for that test lesson smaller.

8. *Teach them how to read for the main points, to judge the relative importance of the various ideas presented, to follow the sequence or thread of thought, to reorganize material in order to answer ques-*

tions that cut across this thread of thought. Some of the questions cannot be answered correctly by detailed reading only. They must understand the selection as a whole, and be able to reorganize its parts, and even draw inferences from facts not overtly stated.

9. *Teach them how to read as rapidly as they can understand what they read, and to regulate their speed according to the purpose for which the reading is being done.* If they read slowly, they will make a small score because they will not have time to answer many questions. If they read too rapidly, they will make a small score because they will not answer many questions correctly. These test lessons will teach them to increase their speed just as fast as they can without sacrificing accuracy, and that a safe rate of speed varies with the situation.

10. *Teach them how to skim.* The best rapid readers are not rapid mainly because they read words and phrases faster than others. It is because they know what and where to read carefully and what and where to read hastily. The questions after each selection do not follow the order of the selection. This is to teach the pupils how to go back to the selection they have read, skim it rapidly until they find the place where the answer will be found, and then read this carefully.

11. *Enable them to score their own or each other's tests.* New-type test items are used, so that scoring is perfectly objective even when done by pupils. Self-scoring by pupils makes the lesson more interesting and educative.

12. *Motivate and improve their oral expression.* While scoring is being done pupils will eagerly debate the correctness of proposed answers. It is planned to utilize this opportunity to teach orderly discussion and improve oral English.

13. *Provide them with opportunity for the practice of leadership.* As soon as pupils have learned the process, different pupils are invited to conduct the scoring.

14. *Help prevent the dull pupils from becoming discouraged and the bright pupils from loafing.* Ordinarily, dull pupils merely recognize that they are toward the bottom of the class. After the first few of these test lessons the humane teacher will focus attention and distribute approval primarily on the basis of the progress shown. This will give the duller pupils a chance to win approval, and will force the able pupils to compete with their own high initial records rather than with those of less able pupils.

15. *Make it possible for them to appreciate more difficult litera-*

TEST LESSON 87

I suppose you have all heard of Iceland. It is an island in the northern part of the Atlantic Ocean. It is about as large as the State of New York. Iceland is a very mountainous country. There are great volcanoes which are often active. This country has sometimes been called the island of fire and ice. You must not think it is nothing but ice and fire. It has many beautiful valleys dotted with flowers of all kinds. Trees are small and rather scarce there. The highest of them reach only thirty or forty feet. The summer is never as hot as in America, and it is very short. The winter is long and mild. In summer Iceland has very long days. In winter the days are very short.

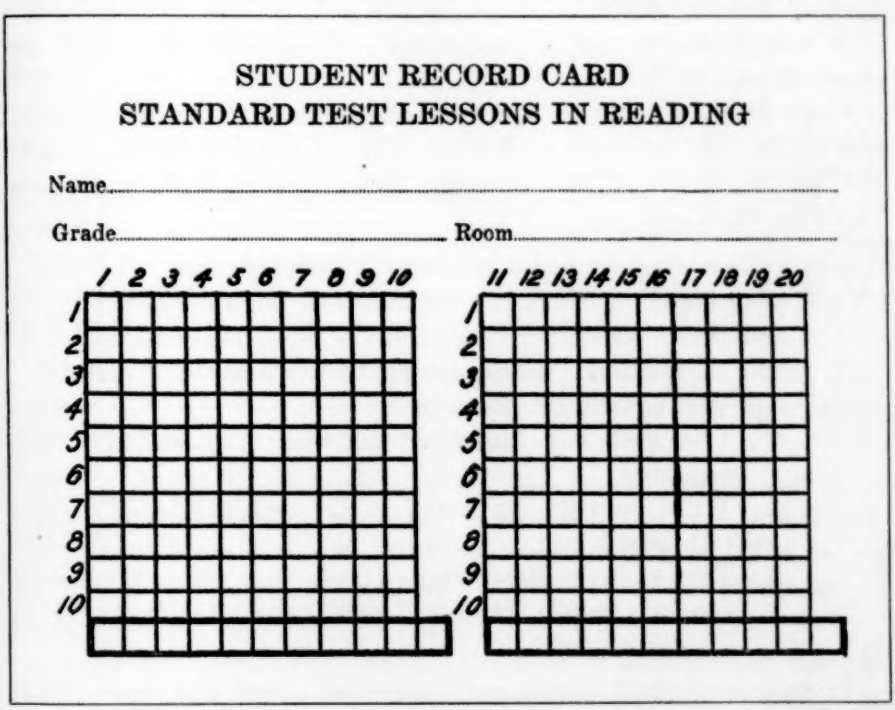
1. Iceland is not just (a) an island; (b) mountainous; (c) a land of ice and fire; (d) a small country.
2. Valleys of Iceland are (a) beautiful; (b) ugly; (c) barren; (d) sandy.
3. Trees of Iceland are never above (a) 50 ft.; (b) 30 ft.; (c) 20 ft.; (d) 10 ft.
4. Winter is (a) rainy; (b) short; (c) severe; (d) mild.
5. Summer is (a) long; (b) short; (c) severe; (d) very hot.
6. In summer the days are (a) very short; (b) fairly short; (c) long; (d) very long.
7. In winter the days are (a) very short; (b) fairly short; (c) long; (d) very long.
8. In Iceland the volcanoes are (a) seldom active; (b) always active; (c) never active; (d) often active.
9. Iceland is in the (a) Atlantic Ocean; (b) Pacific Ocean; (c) Indian Ocean; (d) Antarctic Ocean.
10. In the valleys are many (a) trees; (b) hills; (c) flowers; (d) volcanoes.

No. right	0	1	2	3	4	5	6	7	8	9	10
G score	2.7	3.3	3.9	4.5	5.2	5.8	6.4	6.9	7.5	8.3	8.8

ture, and literature of a wider range. Intellectual comprehension does not guarantee emotional appreciation, but it is prerequisite to it.

16. *Increase their joy in literature by reserving the appreciation period primarily for appreciation.* When the technique of reading is taught during the appreciation period, the tendency is to overemphasize the technique aspect.

17. *Save their time.* Each test lesson is made very brief, in order that there may be plenty of time left in the reading period for the teacher to develop those aspects of reading not provided for in these test lessons. Such aspects are: rapid reading for the main thought or thoughts or thread of thought in longer selections, oral or dramatic interpretation of what is read, and emotional appreciation of literature through widening experiences and sharing appreciations.



THE STUDENT RECORD CARD CONSISTS OF 10 GROUPS OF BOXES SIMILAR TO THE ABOVE

The procedure described below will give an idea of how the lessons are used. It is based upon the recommendations of some twenty-five able teachers who met in conference after a trial of these Standard Test Lessons in Reading in several grades.

Have on the desk as many copies of the Standard Test Lessons in Reading books and Student Record Cards as there are pupils in the class. The Student Record Cards are the same for all grades, but the books are different. One-room rural schools can make use of as many books as there are grades in the room, though not more than three books per room are advised. Book One is for the second grade, Book Two is for the third grade, and so on to Book Seven for the eighth grade. A third grade with inferior reading ability can use Book One or a third grade with superior reading ability can use Book Three, and similarly for other grades. If desired, a grade may finish two books in one year. Whether a class has inferior, normal, or superior reading ability may be estimated by the teacher or determined more exactly by testing the class with any form of the Thorndike-McCall Reading Scale.

A sample lesson and a portion of a Student Record Card are given above.

Copy on the blackboard the following selection with its questions, and to the right of these draw a duplicate of the first few squares on the Student Record Card. Number these squares as they are numbered on the Card.

> The wind wanted a man to take off his coat. The wind blew and blew, but the man held his coat closer and closer about him. The sun wanted the man to take off his coat. The sun smiled and smiled, and the man gladly took off his coat.
>
> 1. The wind (a) hid; (b) was wise; (c) smiled; (d) blew.
> 2. What smiled? (a) man; (b) sun; (c) wind; (d) coat.
> 3. This story is about the (a) sun and man; (b) sun and wind; (c) sun, wind, and man; (d) wind and man.

Provide each child with a well-sharpened pencil and pen and ink. (Colored pencils may be used instead of pen and ink.) Then read aloud the following directions. Pause where indicated and illustrate on the blackboard where necessary.

"Listen carefully, for we shall learn to-day how to do all the test lessons in this book. First, I shall distribute to each of you a Student Record Card. Will pupils in the front row please distribute the cards. . . .

"The card you now have is the one you are to use throughout the year, so write on it your name, grade and room. . . .

"Next, I shall distribute to each of you a book called Standard Test Lessons in Reading. Do not open it until I tell you what to do. Will pupils in the front row please distribute books. . . .

"Be careful not to tear, crease or soil your book and card. Place the card ready for you to write a, b, c or d in the little squares just under 1. . . .

"Open your book to Test Lesson 1. Make sure that it says Test Lesson 1 at the top, but do not read the lesson. When you find Test Lesson 1, close the book, but keep your finger there so you can open it quickly when I give the signal. . . .

"When I say Go—but not before—you are to open your book and read the story under Test Lesson 1. Then read the first question under the story. Decide which of the four answers in that question is correct. You may go back and read the story as many times as you need to. If you think the first of the four is correct, write the letter a in the first square on your card under 1. If, instead, you think the second of the four is the correct answer, write the letter b in the first square on your card under 1. If you think the third of the four is the correct answer, write the letter c in the first square under 1. If you think the fourth of the four is the correct answer, write the letter d in the first square under 1. Only one of the four answers is correct so you will have only one letter in the first square on your card. When you have answered the first question go on to the second question. Decide which of the four answers given in this question is correct, and write the letter a, b, c or d in the second square under 1 on your card. In the same way answer all the other questions on the page. Look at the blackboard, and I shall show you how you are to do it. . . ."

With the blackboard model, show the pupils how to do Test Lesson 1. Lay particular stress on the fact that the letter which goes with an answer is always before it. Then say:

"Try to answer all the questions in the time allowed. But it will do no good to answer a question unless the answer is correct. Do not mark your book. Write all answers on your card. Write all answers with pencil. The pen and ink (colored pencils) are for use in scoring. Get ready so you can start without losing a second. Open your book and begin. . . ."

The instant pupils start, record the time in minutes and seconds. While the pupils are taking the test, move quietly about the room to see that all pupils are working properly. Give assistance where needed, but give no help on just which of the four answers is the correct one. Guard against copying until an ideal of honesty can be built up. At the expiration of exactly three minutes, call:

"Stop! Pencils down! Take up pens (colored pencils)! Keep your book open at Test Lesson 1 while we score. . . .

"I shall read the first question aloud while you read silently. You must decide among yourselves which of the four answers is the correct one and be able to tell why it is correct. If you cannot work it out for yourselves, I shall help you. When you decide which letter should appear after 1 on your card I shall write it after 1 on the blackboard. Then, if the answer on the card you are scoring is correct, you are to make no mark on the card. If the answer is wrong, you are to mark a cross right on the answer. Score misplaced or illegible letters as wrong answers. . . ."

Score the first and then the other questions in like manner. Let the pupils decide on the correct answers. Encourage discussion where there is any disagreement. Make sure that every pupil understands why these answers are correct. Do not permit pupils to decide finally that a wrong answer is the right one.

"Now count the number of answers which are correct. Then look in the book under Test Lesson 1 at the bottom of the page. Here you will find a little table, by means of which you can turn the number correct into a G or Grade score. This G score will mean more to us than the number correct. For example, if the number correct is 5, the G score on Test Lesson 1 is [3.5 for Book Two (Grade III); 4.4 for Book Three (Grade IV)]. When you have this G score, write it on the card in the space provided under 1. Write the G score and not the number correct in this space. Go ahead and do this while I look at your cards to see that you are doing it correctly. . . .

"Close your books. Now I shall tell you the meaning of the G scores you have made. If anyone made a G score of 2.0, that means that he has a reading ability equal to that of the average second-grade pupil throughout the country at the beginning of the second grade. If anyone made a G score of 3.5, that means that he has a reading ability equal to the average third-grade pupil half way through the third grade. If anyone has a G score of 2.7, that means he has a reading ability equal to the average second-grade pupil seven-tenths of the way through the second grade. Some of you tell me what G score you made, and tell me what it means. . . .

"To-morrow we shall take Test Lesson 2, and see if we can make higher G scores than we did to-day. Place your card inside the book. Will pupils in the front row please collect the books and cards in such a way that when we distribute to-morrow each pupil will get the same book and card. . . ."

Re-score all cards this first day in order to discover which pupils failed to follow directions.

The foregoing directions and time allotment apply to every test lesson. After the first day, few directions need be given, except perhaps in the lower grades. Here Test Lesson 1 may be used as a basis for further explanation.

The teacher should put the books and cards away where the pupils will have no opportunity to study lessons on which they have not been tested. If desired, and done under the teacher's supervision, pupils may read again lessons on which they have already been tested. This should not be done often, since the same test lessons may be used again toward the end of the year.

At the close of each lesson the teacher should enquire how many pupils made larger G scores than on the day preceding.

At the end of each group of ten lessons, the pupil should compute his average G score for the ten lessons and write it in the extra G space provided on the card. Then the pupils should compute the G score for the whole class by getting the average of these averages. This should be compared with the G score norm for the class. The G score norm for a third-grade class at the end of the first month of school is 3.1, for a fourth-grade class at the end of the eighth month of school it is 4.8, and similarly for other times and other grades. Both pupils and class can be compared with G score norm.

The pupil's average G score on the last group of ten lessons enables the teacher to compare his reading ability not only with the G score norm for his grade but also with the G score norm for his age.

Age.....	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12
G norm....	0.7	1.2	1.6	2.1	2.6	3.1	3.5	4.0	4.5	5.0	5.5	5.9	6.4
Age....	12½	13	13½	14	14½	15	15½	16	16½	17	17½	18	
G norm	6.9	7.4	7.8	8.3	8.8	9.2	9.7	10.2	11.0	12.0	13.0	14.0	

By testing pupils with the Multi-Mental Scale and thus determining each pupil's G score reading capacity, and by comparing with it his average G on the last ten lessons, it is possible for the teacher to determine whether a pupil is reading as well as he should in view of his capacity to learn to read.[1]

The teacher can increase interest by dividing the class into two teams on the basis of their average scores for the first ten lessons, and having competition between two equal teams. The teams can be reorganized from time to time.

Experiments have shown that the monthly use of the Thorndike-McCall Reading Scale causes a marked increase in pupil's reading ability. Nine duplicate forms of this Scale, all of equivalent difficulty, have been published in order that teachers may test pupils once a month and show them this additional evidence of their progress.

[1] The Multi-Mental Scale is published by the Bureau of Publications, Teachers College.

PROFESSIONALIZED SUBJECT MATTER IN ARITHMETIC FOR NORMAL SCHOOLS

The Checking of Computations as an Illustration

By CLIFFORD BREWSTER UPTON

Associate Professor of Mathematics, Teachers College

ARE these computations correct? Thousands of times each day this question arises among men in the business and technical world. The contractor asks it before he submits his bid; the manufacturer asks it in determining his costs; the business man asks it in figuring his profits; and the navigator asks it in finding his position at sea. The success, the welfare, and even the peace of the world depend upon the constant checking of computations on the part of many people. With the world, checking has become a habit. In the school room, on the contrary, the practice of checking is by no means universal. In some arithmetic classes pupils are never required to prove their work, the answer book being the sole authority that the result is correct. In other schools checking is done only spasmodically and is never continued long enough to become a habit. In relatively few school systems does one find checking systematically taught and required in all the grades of the elementary school.

The reasons why these conditions exist in our schools are not easy to explain. Undoubtedly one of the prominent elements contributing to this situation is the fact that the teachers themselves are not fully acquainted with the various methods of checking and do not understand the importance of this topic. Unfortunately the literature on the subject is very meagre and in many ways unsatisfactory, which is in part responsible for the teacher's lack of knowledge in the matter. She can hardly be expected to present to the children what she herself does not understand.

The standardized tests in arithmetic, now so widely used throughout this country, constitute another influential factor which is unfavorable to the teaching of checking in our classes in arithmetic. As has been pointed out in a previous article,[1] none of these tests require the

[1] Upton, C. B., "The Influence of Standardized Tests on the Curriculum in Arithmetic." *Teachers College Record*, Vol. XXVI, No. 8 (April, 1925).

pupil to check his work at all. In fact, in giving these tests, the time allowed is so short that it is impossible for the child to complete the work and also check it within the time assigned. All the tests in arithmetic are built on the principle of "do the work only once," thus denying the child the opportunity to check his examples by forcing time standards upon him which make checking impossible.

It is apparent that the checking of computations should be an important topic in the teachers' course in arithmetic in the normal school. A thorough knowledge of checking includes a full appreciation of the academic and theoretical aspects of this subject as well as considerable skill in the practice of it. Since a comprehensive treatment of this topic is not available elsewhere, it seems desirable to give such a treatment in this article, not only to meet the needs of teachers who desire help along these lines but also to serve as an illustration of the professional treatment of subject matter in arithmetic as it might be presented in a teachers' course in the normal school. The material given below includes the results of several studies and investigations made by the writer.

This article supplements the discussion[2] on arithmetic which appeared in a recent number of THE RECORD.

METHODS OF CHECKING COMPUTATIONS

1. *Doing the work over again.* One of the methods of checking computations most frequently used is to go over the figures again to see if the same result is obtained both times. In most instances this repetition of the work duplicates exactly the order of the steps in the first computation. Occasionally one finds a person who rewrites the original problem and does all the work anew a second time, the result being considered correct if it agrees with the one first obtained. A variation of this method is found when two different persons work the same problem and compare their results. This practice of going over the work a second time, without altering the original form or order of procedure, is frequently found in the checking of multiplication and division and less often in addition and subtraction.

The principle of "do the work over again" also applies in the checking of measurements as well as computations. The surveyor makes the same measurement several times to be sure that it is correct. The captain of a ship, finding his position at sea, measures the height of the sun with his sextant at least twice before accepting his reading

[2] See the article on "The Teachers' Course in Arithmetic in the Normal School" by C. B. Upton. *Teachers College Record,* Vol. XXVII, No. 2 (October, 1925).

as final. Thus repetition or revision is a fundamental principle of making certain that one is right, whether it be in computation, in measurement, or in giving a telephone number.

2. *Doing the work over again but changing the original order of procedure.* This method is found in checking addition; if the columns were originally added upwards, the checking is done by adding downwards. The same principle is used in checking multiplication by reversing the order of the factors. Thus the product of 473×271 is called correct if it is the same as that obtained from 271×473. This method of checking work is merely an application of a very important principle in arithmetic and algebra, known as the *commutative law,* which may be simply stated as follows: In adding numbers it makes no difference in what order the numbers are added; in multiplying numbers it makes no difference in what order the numbers are multiplied.

3. *Performing the inverse operation.* This method is probably most often used in the checking of subtraction, the remainder being regarded as correct if the remainder plus the subtrahend equals the minuend. It is also frequently used in checking division, the quotient being considered correct if the quotient times the divisor equals the dividend. Similarly, multiplication may be checked by division, but very few people ever do it that way.

4. *Casting out 9's.* This check has great practical value. The reason it is not taught more generally is that teachers are not familiar with it, or do not know enough about it to keep from using it unwisely. This method of checking is fully explained below.

The check of 9's has an interesting history, having been used by the Arabs as early as the 9th century. It came into general use in the 11th century and for 800 years thereafter appeared in most of the important arithmetics. In the 17th century it was quite popular in England due to the influence of Cocker's *Arithmetick* (1677); it became known in America through Greenwood, the author of the earliest native American arithmetic (1729). In the 19th century it dropped out of the American arithmetics but after 1900 it began to appear again.[1]

5. *Estimating the result in advance.* This is a form of approximate checking of the most valuable kind and should be taught in every school room. The practice of estimating the result in advance serves to avoid gross errors. For example, if a shoe dealer buys 144 pairs of rubbers at $0.96 per pair, we know that the product must be a little

[1] See D. E. Smith, *History of Mathematics,* Vol. II, pp. 151-54, for a history of the 9's check.

less than $144 because $0.96 is so close to $1.00. Hence, if a pupil should obtain a result in the neighborhood of $14 or $1400 it must be incorrect. This method is a supplement to, and not a substitute for, the methods mentioned above.

CASTING OUT 9'S

Let us now consider in detail the method of checking by casting out 9's, which can best be illustrated by an example in multiplication.

Suppose we have multiplied 436 by 713 as shown at the right. We wish to know if 310,868 is the correct result. To do this we check the work as follows. We first add the digits of 436 thus: $4 + 3 + 6 = 13$; since 13 is larger than 9, we "cast out" (i.e., we subtract) 9 from 13 which gives 4. This 4 is called the "check number" and is written at the right of 436 as shown in the example. Similarly, we find the check number for 713 as follows: $7 + 1 + 3 = 11$; casting out 9 from 11 we get 2 as the check number, which is written at the right of 713. Since we are checking a problem in multiplication we multiply 4 by 2, which gives 8 as a final check number. We next add the digits in the product, 310,868, which gives $3 + 1 + 0 + 8 + 6 + 8 = 26$; since 26 contains two 9's and 8 over, we cast out the 9's which leaves 8 as the check number. Since this 8 agrees with the final check number 8 obtained above we say that the work checks, or, in other words, that the computation is correct.

	Check
436	4
713	2
1308	(8)
436	
3052	
310868	(8)

In the above work a shorter way to find the check number for 13 is as follows. Instead of subtracting 9 from 13 to get 4, we can obtain the same result by adding the digits thus: $1 + 3 = 4$; similarly, the check number for 26 is $2 + 6$ or 8. For a larger number, like 56, we must add twice, thus: $5 + 6 = 11$, then adding the digits in 11 we have $1 + 1$ or 2 as the check number; similarly, to find the check number for 78 we add thus: $7 + 8 = 15$ and $1 + 5 = 6$. Applying this method to a long number, we cast out the 9's as we add the digits, always reducing to a single check number each time the sum is 9 or more. Thus, in 310,868, we proceed as follows: $3 + 1 + 0 + 8 = 12$; casting out the 9 in 12 (either by subtracting 9 from 12 or by thinking $1 + 2 = 3$) we get 3; adding 3 to the next digit, 6, we get 9 which is cast out; hence the final digit, 8, becomes the check number 8. It is of special interest to note that the check number for any given number obtained by adding the digits

is always equal to the remainder which would be obtained if the given number were divided by 9.

We will now show how the check of 9's indicates that an example has been worked incorrectly. In the work at the right 8 is the check number for 836 and 7 for 574. Multiplying these check numbers we get 56. Since each check number must contain only one figure we add the digits of 56 and obtain 2 as the final check number. We next add the digits in the product, 478,864, as follows: $4+7=11$ which gives 2; $2+8=10$ which gives 1; $1+8=9$ which gives 0; $6+4=10$ which gives 1 as the check number, which does not agree with the final check number 2 obtained above. The fact that these check numbers disagree indicates that the product is incorrect. Thus we find that when the final check numbers disagree the work is wrong and when they agree the work is correct. This last statement will be subject to modification later in this article when we discuss certain special cases where the 9's check fails. In the example given above the correct product should be 479,864, which has a check number of 2 which does agree with the check number first obtained.

	Check
836	8
574	7
3344	56 (2)
5852	
4180	
478864	(1)

Let us now consider how these various methods of checking apply in detail to each of the four fundamental operations.

THE CHECKING OF ADDITION

Adding the columns again in the opposite direction. In column addition the usual practice among accountants and business men is to begin at the bottom of the column and add up. The reason for this practice is well founded. As we add we usually point to the figures with a pencil; by beginning at the bottom and going up we avoid the possibility of covering the figures with the pencil. Having obtained the result by adding upwards, we check the work by beginning at the top of each column and adding downwards. Thus we go over the work again but in a different way. This is the most practical and frequently used check for addition.

Doing the work over again. If our original adding was done upwards we could also check the work by adding upwards a second time. This is not as reliable a check as the one described above since it does not bring the figures before us in a new order. We always use this method, however, as a further check if the results fail to agree when we have checked by adding downwards.

The method of checking addition by merely doing the work again is also much used by those who operate adding machines. A computer who has added a great many items on an adding machine does not distrust the ability of the machine to add correctly but he does question the accuracy with which he may have struck the various keys; for this reason it is customary in many offices to check sums obtained on an adding machine by doing the work all over again in the same manner as the original work was done. If the results agree each time, the work is considered correct.

Performing the inverse operation. It is not customary to check addition by subtraction, but we sometimes have the equivalent of this in the process of taking a trial balance in keeping books. If the books balance, then the various series of additions which contribute to this trial balance are regarded as correct. Subtraction is sometimes one of the operations necessary in finding this balance.

Casting out 9's. The method of casting out 9's applies in addition, as well as in multiplication, as shown in the example at the right. The check number is first found for each addend; these check numbers are then added, giving 17 as a sum; casting out 9 from 17 we get 8 as a final check number. Since 8 is also the check number of the sum the work is correct. The disadvantage of this method lies in the fact that it takes more time to find the check numbers, and then to add them, than it would to add each column in the opposite direction as recommended above.

	Check	
436	4	
253	1	
914	5	
120	3	
567	0	
733	4	(8)
3023		(8)

Summary. The most practical method of checking addition is the one first mentioned where the original work is done by adding the columns upwards and the checking by adding them downwards.

THE CHECKING OF SUBTRACTION

Performing the inverse operation. The usual and most practical method of checking subtraction is by addition. Thus, in the example at the right, 856 is the correct difference if 856 added to 687 gives 1543. This adding is usually done by going over the figures as they stand instead of rewriting the numbers to be added.

1543
687
856

Teachers sometimes ask how to check the work when the original subtraction has been done by the additive method, sometimes called the Austrian method; they seem to have the impression that we can-

not use addition as a check when the subtraction has been done additively. It is possible in this case to check by addition provided we add in the opposite direction to that used in the subtraction. In the above example we think as follows during the process of additive subtraction: $7 + 6 = 13$, $9 + 5 = 14$, and $7 + 8 = 15$. We check by adding upwards, which either reverses the order of the addends or gives a different set of figures to be added, due to the numbers carried. Thus $6 + 7 = 13$, 1 (carried) $+ 5 + 8 = 14$, 1 (carried) $+ 8 + 6 = 15$. Hence we see that addition is a thoroughly practical check whether the subtraction is performed by the additive method or by the "take-away" method.

Doing the work over again. Subtraction is sometimes checked merely by repeating the steps of the original work. This method is inferior, however, to the check by addition.

Casting out 9's. The 9's check may also be used in subtraction, but it is not practical for this operation because it requires more time than the method of checking by addition mentioned above. In checking by 9's the check numbers are subtracted. In the example shown here we note that the upper check number, 4, is less than 6; hence we add 9 to 4 which gives 13; then $13 - 6 = 7$, which is the final check number. Since 7 is also the check number for 286 we call the work correct. One might be tempted to add 10 instead of 9 to 4, but the theory of the 9's check to be presented in a subsequent article will make clear why we add 9.

	Check
751	4
465	6 (7)
286	(7)

Summary. The most practical way to check either additive or "take-away" subtraction is by the addition method described above.

THE CHECKING OF MULTIPLICATION

Doing the work over again. When the multiplier is a one-figure number the usual method of checking multiplication is to go over the figures again, repeating each step of the original work. This is usually done without rewriting the numbers, but this check would be more dependable if the example were rewritten and worked independently a second time. If the results agree both times, the product is correct. To rewrite the numbers, however, takes longer and introduces the possibility of an error due to copying. This method of going over the work again is also the one most used with a multiplier of two or more figures, though this is not as reliable a check as that of reversing the factors.

$14.36
6
$86.16

Doing the work again, reversing the factors. A very good way to check multiplication is to reverse the factors and multiply again as shown below. This method is especially satisfactory when both

Original	Check	Original	Check
45	24	512	37
24	45	37	512
180	120	3584	74
90	96	1536	37
1080	1080	18944	185
			18944

factors have about the same number of figures, but it becomes inconvenient in the case of a one-figure multiplier as may be seen in the example at the right. This check for multiplication not only gives very reliable results but also has the merit that children enjoy it, for to them there is something mysterious about the fact that the result comes out the same, no matter which way the work is done. The plan of reversing the factors also has the advantage that it provides additional drill in multiplication in a way that is not burdensome to children.

Original	Check
127	9
9	127
1143	63
	18
	9
	1143

Performing the inverse operation. There are a few schools in which children are still taught to check multiplication by the process of division, the product being divided by one of the factors; if the quotient equals the other factor the work is correct. While this method is theoretically satisfactory, it is not practical because it requires much more time than either of the methods described above. It also has the disadvantage of being tedious and uninteresting to children.

Casting out 9's. The method of casting out 9's as applied to multiplication has already been explained on page 195. While we found the check of 9's too long to be used for addition or subtraction, this method, on the contrary, is probably the most practical one for multiplication. It is by far the most rapid means we have for proving work in multiplication and, when its peculiarities are understood, it is sufficiently dependable for most purposes. It also has the merit that children find great interest in using it. The reason why it is not more generally taught is that most teachers are not familiar with it

since the textbooks rarely give it. This method may safely be introduced in the fifth or sixth grade.

Summary. Since multiplication is ordinarily taught in the third and fourth grades the best method of checking for these grades is that of doing the work over again or of reversing the factors when it is practical. In the fifth or sixth grade casting out 9's may be introduced, though some teachers prefer to leave it until the seventh grade.

THE CHECKING OF DIVISION

Doing the work over again. A method often used for checking short division is to go over the work again. This check would be more dependable if the numbers were rewritten and the second division performed independently. Most people, however, find it tedious to take this additional precaution and are satisfied if they go over the figures carefully a second time.

Performing the inverse operation. The most frequently used method of checking long division is the one shown here where we multiply the quotient by the divisor and add the remainder, if any. If the result equals the dividend the work is considered correct. It is strongly recommended that this method be used in the third, fourth, and fifth grades for both short division and long division.

```
                    Check
      19            19
21)406              21
     21             19
     196           38
     189           399
       7            7
                   406
```

Casting out 9's. Casting out 9's is the shortest method of checking division. As shown in the example below the check number is 5 for the divisor, 6 for the quotient, 1 for the remainder, and 4 for the dividend. To check the work we multiply the check number of the divisor by the check number of the quotient and add the check number of the remainder. The result (with the nines cast out) should equal the check number of the dividend. Thus $6 \times 5 = 30$, and $30 + 1 = 31$; casting out the 9's in 31 we get 4 as the final check number. Since the check number of the dividend is also 4, the work is considered to be correct.

```
          (6)                Check
(5)   456
23)10498  (4)                 5
     92                       6
     129                     30
     115                      1
      148                    31 (4)
      138
       10  (1)
```

Estimating the result in advance. In division particularly it is always a good plan to estimate the result mentally before doing the work. This will avoid gross errors. This estimate, however, should be supplemented by one of the checks mentioned above.

Summary. In the third and fourth grades, and probably in the fifth grade, the most practical way to check division is by multiplication. In the sixth or higher grades the check of 9's may be introduced. The practice of estimating the result in advance is also recommended for the upper grades.

WHEN THE CHECK OF 9'S FAILS

A few years ago one of the teachers of the Horace Mann School, after showing her fifth grade children how to cast out 9's, was much surprised one morning to have a boy come to her with his home work, as soon as he arrived at school, and say, almost in tears, "Look at this; your old check doesn't work!" This boy had applied the check of 9's to a problem in multiplication and, according to this check, the problem had been worked correctly. The boy's father had pointed out to him, however, that the work was wrong in spite of the fact that it seemed to check by 9's. The boy had made one of those mistakes, that sometimes occur, which the check of 9's is unable to detect.

It is of especial interest that these particular errors are always mistakes of 9 or a multiple of 9. In some ways the check of 9's is wonderfully like human beings who can easily point out the mistakes of others but who never see their own faults. It is important, therefore, to review those types of errors which are multiples of 9 which the check of 9's fails to detect.

In multiplication the most frequent error of this kind is that which occurs when a partial product is misplaced as shown at the right. It will be seen that this example checks by 9's even though the work is incorrect. If we find the correct answer to this example we shall notice that the difference between that result and the one here given is a number which is an exact multiple of 9. An easy way to see that this error must be a multiple of 9 is as follows. By writing the second partial product one place too far to the left we made that partial product ten times as great as it ought to be. The difference between the correct partial product and ten times that partial product

	Check
327	3
49	4
2943	12 (3)
1308	
133743	(3)

is, therefore, nine times that particular partial product. Hence the error introduced is a multiple of 9.

Another variety of this same error arises when zeros in the multiplier are neglected as seen in the example at the right. In this case the second partial product has been written one place too far to the right which means that the correct partial product would be ten times as great. Again we see that the error is a multiple of 9. We find that this example also checks by 9's.

	Check	
528	6	
407	2	
3696	12	(3)
2112		
24816	(3)	

If two figures are transposed, as may happen in copying numbers, the error in the answer resulting from such transposition will not be picked up by the 9's check. Thus, if we write 658 instead of 685, we note that both have the same check number, since the check number is obtained by adding the digits and is in no way affected by their order. It is also of interest that the difference between 685 and 658 is 27, which is a multiple of 9.

We can easily prove algebraically that the difference between any two-figure number and the same number transposed is always a multiple of 9. Thus, any two-figure number may be represented by $10a + b$ where a and b stand for the digits. This number transposed would be represented by $10b + a$. Subtracting, as shown here, the difference is seen to be $9(a-b)$ which is a multiple of 9.

$$\begin{array}{r} 10a + b \\ a + 10b \\ \hline 9a - 9b = 9(a-b) \end{array}$$

A third failure of the check of 9's is sometimes found in long division when the check number of the divisor equals 0. In this case an error in the quotient may occasionally remain undetected. Such a failure of the check is illustrated in the example at the right. By multiplying the check number of the divisor by the check number of the quotient we get 1×0 which gives 0 as a final check number. Since the check number of the dividend is also 0 the work would seem to be correct; but, on careful inspection, we find that it contains errors and that 235 is not the correct quotient. If we write at random any other quotient, such as 741, it would also appear to be correct since its check number times 0 would equal 0 and hence agree with the check number of the dividend, which is also 0. The failure of the 9's check in such situations is due to the

	(1)	
(0)	235	
45)11475		(0)
	90	
	147	
	125	
	225	
	225	

fact that any number times 0 equals 0. Because of this fact any other incorrect quotient, such as 247 or 908, would likewise check.

The failure of the 9's check just described is not likely to occur, however, in those problems in division which have a remainder, since most errors which would produce an incorrect quotient would introduce corresponding errors in the remainder; hence the check number of this incorrect remainder would so affect the final check number as to prevent the 9's check from failing in this situation. In the accompanying illustration, we find that the 9's check *does* indicate an error, even though the check number of the divisor is 0. Thus $6 \times 0 + 2$ gives 2 as a final check number, while 1 is the check number of the dividend. The fact that the check numbers are not the same shows that a mistake has been made somewhere in the division.

```
      (6)
(0)  564
45)24418  (1)
  225
   291
   270
    218
    180
     38  (2)
```

In view of the above considerations one might hastily conclude that the 9's check is not trustworthy and therefore should not be taught. This conclusion is hardly justified. Of all the above errors the one which occurs most frequently in the school room is that of misplacing the partial product. If pupils are instructed carefully concerning the placing of partial products, then the failure of 9's in this situation is largely eliminated. While the transposition of figures occurs often in bookkeeping, or in calling telephone numbers, this is not a situation which occurs frequently during the actual process of computation. If we do not use the 9's check for multiplication and division, then we must check by some method which is much longer. Some people do not like to use these longer methods because they take so much time. As a result we may find that work in multiplication or division is done only once, the computer taking a chance that the answer is right. Because of the extreme ease with which the 9's check may be applied, many of these people would be willing to use it if they were familiar with it. In this way the great majority of their errors would be picked up.

All things considered, it is strongly recommended that the check of 9's be taught for multiplication and division provided the teacher is thoroughly familiar with those situations in which this check fails, so that she can keep the pupils' confidence not only in the check but also in herself. It is of theoretical interest that the failures of the 9's check may easily be discovered if we apply the check known as

"casting out 11's" which will be described in a subsequent number of THE RECORD.

INVENTORY OF METHODS OF CHECKING USED BY ADULTS

In order to learn what methods of checking are actually used by adults the writer asked each person in several large groups to state the methods of checking employed in his own personal computations. The results of this inventory are given below. From the figures it will be seen that in addition, for example, 87% of the persons checked this operation by adding the columns in the opposite direction to that used in the original addition.

Addition. Adding the columns again in the opposite direction, 87%; adding the columns again in the same direction as the original addition, 8%; no fixed method of checking, 2%; casting out 9's, 3%.

Subtraction. Checking by addition, 80%; going over the work again (i. e., subtracting twice), 16%; miscellaneous, 4%; casting out 9's, 0%.

Multiplication with a one-figure multiplier. Going over the work again, 86%; checking by division, 9%; rewriting the problem and working it again, 1%; casting out 9's, 3%; do not check, 1%.

Multiplication with a multiplier of two or more figures. Going over the work again, 68%; multiplying again with the factors reversed, 15%; checking by division, 9%; casting out 9's, 4%; do not check, 4%.

Short division. Going over the work again, 60%; checking by multiplication, 38%; checking by long division, 2%; casting out 9's, 0%.

Long division. Checking by multiplication, 57%; going over the work again, 35%; rewriting the problem and dividing again, 7%; casting out 9's, 1%.

It must be understood that the above figures indicate the methods actually employed by a large group of adults. Among this group less than 5% of the persons had ever heard of casting out 9's. In addition, multiplication, and short division one is particularly impressed with the fact that the method of checking most used is to go over the figures a second time, though in the case of addition the work is repeated by adding the columns in the opposite direction.

[*To be continued in the January number*]

A PARTIAL BIBLIOGRAPHY ON CURRICULA

SELECTED AND ANNOTATED

BY THOMAS H. BRIGGS
Professor of Education, Teachers College

BECAUSE of the great current interest in curricula publication is made of the appended bibliography. The items have been collected and annotated partly by students in several of my classes during the past few years; but each of their entries has been checked and most of them entirely rewritten. There is no claim to completeness. Few entries relate to material earlier than 1915,— most of them, indeed, being much more recent, reflecting the new interest in curricula; no record is made of numerous articles that are so general as to have little or no value; courses of study for special subjects are entirely neglected; and only a few references are made to surveys, which for the most part either give little attention to subject matter or else include comment with a preponderance of measurements. Another type of unlisted article, often of importance, is that dealing with some accessory or subordinate problem of the curriculum,—such as Thorndike and Robinson's "Diversity of High School Students' Programs" or Koons's "Vocational Distribution of Pupils after Leaving School." Doubtless some articles of primary importance have been overlooked, but it is hoped that students of the curriculum will by this bibliography be saved many hours of work in the library.

Adams, Jesse E. Determinants of Curricula for Small High Schools. *Proceedings of High School Principals' Conference,* Indiana University, 1924, pp. 30-44.

Considers with both original and quoted data factors affecting curricula of small high schools.

Atlanta, Georgia, Report of the Survey of the Public School System. The Curriculum, pp. 213-33. George D. Strayer and N. L. Engelhardt, directors. 1922. Pp. 255.

Time allotment for elementary school subjects with comments and recommendations; curricula for junior and senior high schools with a series of recommendations, pp. 230-33.

Ayres, Leonard P. Differentiation in Courses of Study. *Journal of Education,* 79:317-18 (March 19, 1914).

Variety is needed in courses of study to fit them to individual differences and needs.

Bagley, William C. Differentiated Curriculum versus Common Elements. *School and Home Education,* 35:215-18 (March 1916). Also in *Proceedings of National Education Association,* 1916, pp. 958-65.

Differentiated curriculum overlooks the problem of insuring an adequate number of common elements in the people's culture, of an adequate measure of likemindedness, of a fund of common ideals and standards of a democratic group. Furthermore it is wrong to think that what is called general education is necessary only for those who go into professions. Vocational and liberal should not be so differentiated if we are to prevent class distinctions.

Bagley, William C. Principles Justifying Common Elements in the School Program. *School and Home Education,* 34:119-31 (December 1914).

Argument for and against uniformity. Contemporary educational theory condemns any attempt to justify as constants anything but the merest tools of the three R's. "Significant as individual differences are, it should not be forgotten that, for social welfare, resemblances in ideals and standards are vastly more important than resemblances or differences in native capacity." "The efficiency of a democracy is directly dependent upon the number of ideas that are common to all of the members of the democratic group."

Bobbitt, Franklin. *Curriculum Making in Los Angeles.* Supplementary Educational Monographs, No. 20, University of Chicago, June 1922. Pp. 105.

A comprehensive study of the selection of detailed objectives for curriculum making in junior and senior high schools and the principles of selection. Elaborated into How to Make a Curriculum.

Bobbitt, Franklin. *How to Make a Curriculum.* Houghton Mifflin Co., 1924. Pp. 292.

The Los Angeles procedure presented as a pattern: a preliminary survey; guiding principles; major objectives by job analyses of adult activities broken up into details, with stress on those most needed as indicated by common errors.

Bobbitt, Franklin. The New Technique of Curriculum Making. *Elementary School Journal,* 25:45-54 (September 1924).

"To discover both the objectives of the curriculum and the curriculum itself" by analyzing the activities of man at all age levels in unspecialized fields.

Bobbitt, Franklin. A Significant Tendency in Curriculum Making. *Elementary School Journal,* 21:607-15 (April 1921).

To particularize with definiteness and in detail the objectives in the light of human needs, to formulate a series of child activities which will meet the needs of individual differences, uniform courses of study being impossible.

Bobbitt, Franklin. *The Curriculum.* Houghton Mifflin Co., 1918. Pp. 289.

An extended theory of the curriculum, which should have as major objectives efficiency in (1) occupation, (2) citizenship, (3) physical health, (4) leisure, and (5) social intercommunication; play and work levels; curriculum concerned with objectives not satisfactorily attained by general undirected experience.

Bobbitt, Franklin. The Actual Objectives of the Present-Day High School. *School Review,* 29:256-72 (April 1921).

Number of daily class groups per 100 offered by 51 representative high schools reported to show curriculum tendencies, especially relating to the seven major objectives as presented in the Cardinal Principles; comment on each group.

Bobbitt, Franklin. Discovering and Formulating Objectives of Teacher Training Institutions. *Journal of Educational Research,* 10:187-96 (October 1924).

Recommends job analysis of good, not the prevailing, teaching practice to determine objectives of teacher-training schools; divides the teacher's work into six major fields, briefly discusses each, and suggests further analysis; incidental explanation of author's inclusion of "ideals" as factors involved in abilities.

Bobbitt, Franklin. What Understanding of Society Should Education Develop? *Elementary School Journal,* 25:290-301 (December 1924).

"The major labor of education so far as time on the program is concerned, is to provide mankind this wide and clear vision of social groups of all kinds, together with their relation to one another, their rights, and their duties." Reports analyses to show content of articles on foreign countries.

Bobbitt, Franklin. The High School Principal's Responsibility in Curriculum Construction. *Proceedings of High School Principals' Conference,* Indiana University, 1924, pp. 15-20.

Postulates that it is the leader's responsibility to develop a clear and detailed understanding of functional education—its objectives, procedures, and necessary conditions, and to assist teachers to an understanding of them. Proposes nine steps to be taken by the principal.

Bobbitt, Franklin. Difficulties to Be Met in Local Curriculum-Making. *Elementary School Journal,* 25:653-63 (May 1925).

Indicates and briefly discusses thirteen obstacles or difficulties, some of them general as well as local.

Bode, Boyd H. Why Educational Objectives? *Journal of Educational Research,* 10:175-86 (October 1924).

Criticism of Bobbitt's "abilities through job analysis" as difficult and subjective, Charters' "ideals and activities" as formal and routinizing, and Snedden's "producer-consumer" idea as unscientific; unless theories of education, the learner, and the learning process are given an important place, "this scientific education is bound to become an elaborate nuisance."

Bonser, Frederick G. *The Elementary School Curriculum.* Macmillan Co., 1921. Pp. 466.

Chapters 1 to 5 are especially rich in their presentation of the relation of the curriculum to the present concept of the aims of education.

Bonser, Frederick G. The Curriculum as a Means of Revealing Vocational Aptitudes. *Education,* 37:145-69 (November 1916).

"The largest contribution the school can make to the problem of vocational guidance lies in its providing such a curriculum and such methods of work that it will both develop and reveal individual capacities or aptitudes in terms of vocational activities." The school curricula must, therefore, be enriched and gradually reconstructed in terms of life values and vocational motives.

Briggs, Thomas H. *The Junior High School.* Houghton Mifflin Co., 1920. Pp. 350. Bibliography.

In Chapter 6 are presented purposes of education and of the junior high school which should be the principles governing the content of the curriculum; consideration of proposed and actual curricula.

Briggs, Thomas H. Curriculum Reconstruction in the High School. *School Review,* 31:109-15 (February 1923).

States three obstacles to curriculum reform and proposes a theoretical plan for attacking the curriculum problem.

Briggs, Thomas H. Guiding Principles in Making Courses of Study. *State of Missouri Courses of Study,* Part II. Bulletin No. 1, 1925, pp. 81-92. State Department of Education, Jefferson City, Mo.

A body of pragmatic principles for curriculum revision.

Briggs, Thomas H. and Cox, Philip, W. L. Principles of the Curriculum. *Survey of Schools, Baltimore, Maryland, 1920.* Vol. III, pp. 65-90. Board of Education, Baltimore, Md.

Concise statements, with brief discussion, of nine principles of the curriculum, examples of application, and recommendations for further use of each principle.

Brooks, E. C. Seven, Eight, and Nine Years in the Elementary School. *Elementary School Journal,* 14:20-28; 82-92 (September-October 1923).

Because of factors varying in each type it is next to impossible to decide which is generally the best.

Buckingham, B. R. Scientific Curriculum Building. *Journal of Educational Research,* 1:404-407 (May 1920).

A plea that "minimum essentials," as determined by frequency counts, shall guide rather than restrict the curriculum maker, and proposes as further criteria difficulty and social usefulness.

Caldwell, Otis W. Types and Principles of Curricular Development. *School and Society,* 17:309-306 (March 24, 1923). Also in *Teachers College Record,* 24:326-37 (September 1923).

Two types of development outlined and certain guiding principles stated.

Chanute, Kansas, Survey Report of the School System. Bureau of School Service and Research, University of Kansas, Lawrence, 1924. Pp. 134.

"A series of constructive recommendations, based on sound theories of curriculum construction," for the secondary schools (pp. 42-64), and "running comments on the curriculum" for elementary schools (pp. 64-93).

Charters, W. W. The Los Angeles High School Curriculum. *School Review,* 31:95-103 (February 1923).

A criticism of Bobbitt's study of Curriculum Making in Los Angeles. Charters points to (1) the minor position given to ideals; (2) the need for simplifying the activities; (3) the need for scrutinizing factual content more closely. Four lines of analysis are proposed to simplify and clarify the work done at Los Angeles: ideals, activities, factual content, educational principles.

Charters, W. W. Revising the Course of Study. Editorial in *Journal of Educational Research,* 1:403-404 (May 1920).

Deals with the question of who should meet the expense involved in the revision of the course of study and lays down the idea that the boards of education should realize that it takes money to do this.

Charters, W. W. *Curriculum Construction.* Macmillan Co., 1923. Pp. 352.

Discusses activity analysis and ideals in relation to curriculum construction, proposes seven rules for it, and presents summaries of studies of subject matter applicable to the elementary school curriculum.

Charters, W. W. Activity Analysis and Curriculum Construction. *Journal of Educational Research,* 5:357-67 (May 1922).

Advocating job analysis, author bases content on use to which subject is to be put, distinguishes between analysis of sequential and the more difficult of non-sequential activities, points out necessity for analysis of difficulty, in details as well as in gross, and of the method, for determination of ideals, distinguishes primary and derived subjects, and states that in vocational subjects there must also be extra-vocational content.

Charters, W. W. Functional Analysis as the Basis for Curriculum Construction. *Journal of Educational Research,* 10:214-21 (October 1924).

Functional analysis, a more comprehensive term than job analysis, is a method of investigation, not a philosophy of education, that each *A*ctivity may be carried on by *I*deal with due regard to *P*ersons, with *R*easoning used to plan the proper method to carry on the activity with a certain *T*echnique in an atmosphere in which there is an *E*motional element—giving the mnemonic AIPRTE.

Charters, W. W. The Five Factors in Teaching Ideals. *Elementary School Journal,* 25:264-76 (December 1924).

Five precepts proposed are: (1) Create the desire, (2) Diagnose the situation, (3) Develop a plan of action, (4) Require practice, (5) Generalize ideals.

Clark, M. G. The Course of Study a Factor in Efficient Teaching. *Journal*

of Education, 92:598-600 (December 16, 1920). Similar to article in *School and Home Education,* 40:62-64 (November 1920).

Answer to the question, What constitutes a course of study? Author proposes definite criteria for judging the efficiency of any given course. "It must function in the stimulation of the child to an intelligent school cooperation, . . . in an awakened civic consciousness, . . . in vocational stability, . . . in the intelligent choice of the child's leisures, . . . in the self-determination of the child."

Clement, John A. *Curriculum Making in Secondary Schools.* Henry Holt & Co., 1923. Pp. 534.

The author assembles some of the principles, problems, and practices bearing upon the business of curriculum making in secondary education.

Clement, John A. Attitudes Toward Curriculum Making and Secondary School Objectives. *Educational Administration and Supervision,* 8:541-56 (Dec. 1922).

Argues that the selection of subject matter and of objectives is inseparable; enumerates the main objectives proposed by the Cardinal Principles of Secondary Education, Bobbitt, the North Central Association, Snedden, and Inglis; and quotes samplings of adaptation of subject matter, especially in English, to objectives.

Clement, John A. The Business of Scientific Curriculum Making in Secondary Education. *Educational Administration and Supervision,* 9:357-66 (Dec. 1923).

Along with a plea for scientific curriculum making and "more experimental schools . . . established in different sections of the country and endowed for the purpose of carrying on scientific curriculum experimentation and construction in secondary schools," author proposes several guiding principles.

Clement, John A. A Description and Evaluation of Published Secondary School Programs of Study. *Educational Administration and Supervision,* 9:235-42 (April 1923).

Proposes uniformity in the terminology and publication of curricula and courses of study, and suggests some details.

Coffman, Lotus D. Methods Used in the Determination of Minimum Essentials. *Teachers College Record,* 18:243-52 (May 1917).

Describes nine plans in use for defining the standard units in any course of study.

Coffman, Lotus D. The Minimum Essentials Versus the Differentiated Course of Study in the Seventh and Eighth Grades. *Proceedings of National Education Association,* 1916, pp. 953-58. Also in *School and Home Education,* 35:213-15 (March 1916).

"Before specialized skill and knowledge are set up as ends of education, all that knowledge of a non-technical nature with which every informed and reasonably well-adjusted citizen in an American state is equipped; all those social and personal habits; all those ideals, attitudes, appreciations, prejudices, and contempts which distinguish the desirable citizen; all those duties and obligations which fix our responsibility and constitute the basis of our social life; all those tools which represent the instruments of learning and the expression of experiences as our com-

mon usefulness—all these common elements the seventh and eighth grades . . . must see that their pupils possess on leaving them."

Collings, Ellsworth. *An Experiment with a Project Curriculum.* Macmillan Co., 1923. Pp. 346.

Report of a four-year experiment in a group of Missouri rural schools, with measurements to evaluate the results.

Cook, J. H. Principles Underlying the Organization of Public High School Curricula. *North Carolina High School Journal,* 3:167-71 (October 1919).

Discusses the principles of curriculum making as applied especially to the high schools of North Carolina.

Courtis, S. A. Validation of Objectives. *Journal of Educational Research,* 10:197-207 (October 1924).

We need to validate our choice of objectives,—ultimate, intermediate, and immediate, the last being emphasized—even more than we need to validate our means of achieving them. Validation involves the proof that the effect produced by teaching effort really functions in life as we expected it would and is determined by the "critical factor." Proposes this addition to Charters' seven steps.

Cox, Philip W. L. *Curriculum Adjustment in the Secondary School.* J. B. Lippincott Co., 1925. Pp. 305. Bibliography.

A view of secondary education, with a list of important factors; a résumé of opinions on curriculum construction; proposes, defends, and illustrates sixteen guiding principles and seven functions.

Cox, Philip W. L. Standard Requirements for High School Graduation. *Sixth Yearbook National Association of Secondary School Principals,* 1922, pp. 85-92.

Committee report dealing with important terms, and a summary of principles relating to graduation, agreed upon from replies to questionnaires.

Davis, Calvin O. *High School Courses of Study.* World Book Co., 1914. Pp. 172.

A report on the New York City schools, together with four chapters on the newer conception and aims, recommendations, and comparative study of systems in ten cities.

Davis, Calvin O. *Junior High School Education.* World Book Co., 1924. Pp. 451.

Pages 104-25 present the general approach to a program of studies with reference to the individual, community, nation, and society; pages 125-184 discuss eight representative junior high school curricula.

Davis, Calvin O. The Curriculum and the Seven Objectives of Secondary Education. *Ninth Yearbook National Association of Secondary School Principals,* 1925, pp. 112-30.

Report of a questionaire study as to the effect of The Cardinal Principles of Secondary Education on curriculum practice.

Davis, Calvin O. Reorganization of Secondary Education. *Educational Review,* 42:270-301 (October 1911). Appears as Chapter IV in Johnston's *High School Education,* pp. 67-105. Scribner's, 1912.

Criticism of the existing secondary school organization, an early argument for the junior high school, and a proposal of five standard curricula.

Department of Superintendence, Second Yearbook. The Elementary School Curriculum. 1924. Pp. 296.

Papers by a number of authors on various phases of the elementary school curricula: the machinery and organization for devising, revising, and supervising the curriculum; a general analysis of present practice; recent developments.

Department of Superintendence, Third Yearbook. Research in Constructing the Elementary School Curriculum. 1925. Pp. 424.

A coöperative plan for the revision of the American elementary school curriculum; possible variations in curricula to meet community and individual needs; curriculum problems in the several subjects and their solution.

Dewey, John. *The Child and the Curriculum.* University of Chicago Press, 1902. Pp. 40.

A brief philosophic approach to the problem. The curriculum maker is ever faced with the conflict of interest versus discipline. The child is the starting point, center, and end in education. The curriculum should lead him from his experiences with intrinsic interest to other experiences and be subservient to his growth and self-realization.

Dewey, John. *Democracy and Education.* Macmillan Co., 1916. Pp. 434.

Basic principles of education in a democracy, determined philosophically and psychologically, affecting curriculum content, with emphasis on work and play, geography, history, and science, with many criteria of value. Education is defined as "that reconstruction which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience."

Douglass, A. A. *The Junior High School.* National Society for the Study of Education, Fifteenth Yearbook, Part III, 1916. Pp. 157. Bibliography.

Chapter III, pp. 51-87, summarizes discussions regarding the philosophy of junior high school curricula, presents principles underlying the forming of courses of study in several subjects, and shows by tables and charts curriculum practices.

Douglass, A. A. The Secondary School Curriculum. *School and Society,* 21:-603-609 (May 23, 1925).

"Unless ideals, attitudes, and points of view are recognized, unless they are clearly formulated and made coextensive with social activities in the formulation of secondary school objectives, the curriculum will be less efficient than it should be in influencing conduct."

Edmonson, J. B. and Webster, A. H. *Policies and Curricula of Schools of Education in State Universities.* Higher Education Circular No. 30, United States Bureau of Education, August 1925. Pp. 32.

Historical sketch, purposes of schools of education, an analysis of curricula, requirements for graduation, special curricula, observation and practice teaching, some suggested problems.

Edwards, Alice L. Tools for Building the Curriculum. *Journal of Home Economics,* 17:194-98 (April 1925).

Advocates for fact finding a survey of seven steps or a questionaire.

Farrand, Wilson. Readjustment in Secondary Education. *Educational Review,* 56:192-98 (October 1918).

Points out the growing tendency toward a curriculum that will develop definite standards of attainments and relate the processes of formal education to the activities of later life.

Felter, William L. On Reconstructing the Curriculum in Secondary Schools. *Educational Review,* 43:37-48 (June 1914).

The old high school curriculum must be supplemented by others reflecting the present needs of local communities, giving a more rounded education, good for those who are eliminated, fitted to pupils, functioning for girls and for boys alike.

Ferriss, Emery N. Curriculum Building in the Rural High School. *School Review,* 31:253-66 (April 1923).

Suggests eight principles for the development of curricula for rural high schools.

Finney, Ross L. The Sociological Principles Determining the Elementary School Curriculum. *School and Society,* 7:338-49 (March 23, 1918).

The community-of-interest idea is advocated in a core around which subjects should center. Author states that we have been influenced by excessive individualism, the demand for specialization, and the tendency to cater to the immediate needs of the poor.

Fitzpatrick, E. A. Development of the Course of Study in American Schools. *Educational Review,* 49:1-19 (January 1915).

Largely historical, showing the changes and growth in the course of study through the different periods, especially in Massachusetts elementary schools.

Gildersleeve, Virginia C. Constructive Elements in the Curriculum. *Educational Review,* 53:137-45 (February 1917).

Refers to the curricula of secondary schools and colleges; it outlines from the point of view of a president of a woman's college the equipment in the student to be aimed at and the qualities to be constructed.

Glass, James M. Report of Committee on the Reorganization of the Seventh, Eighth, and Ninth Grades. *Proceedings of National Education Association,* 1923, pp. 433-34.

States principles for the reorganization of a course of study, articulation of elementary and secondary courses, description of evolution of new courses, such as social science and practical arts, and need of experimentation in curriculum making.

Glass, James M. *Curriculum Practices in the Junior High School and Grades Five and Six.* Supplementary Educational Monographs, No. 25, University of Chicago, November 1924.

A statistical study of the practices in fourteen representative school systems, showing the wide divergences in these systems and demonstrating the need for further work in the field of the scientific reconstruction of the curriculum.

Grand Rapids, Michigan, School Survey of, 1916. Board of Education, Grand Rapids, Michigan. Pp. 510.

Consideration of elementary courses contains many measurements; for secondary schools, junior and senior, there are comparisons and criticisms.

Green, J. M. Principles Underlying the Determination of a Course of Study. *Proceedings of National Education Association,* 1915, pp. 350-54.

Discusses the need of keeping in mind community ideals and founding a course of study on a well defined community sense.

Guthrie, Mary G. The Work of the Course of Study Committee of the Chicago Principals Club. *School and Society,* 19:132-34 (February 2, 1924).

Account of the organization, difficulties, and procedure of committees in developing through experimentation for three years an English course and through questionaires other courses for the elementary schools.

Hall-Quest, Alfred L. Curriculum Thinking. *Educational Review,* 54:109-17 (September 1917).

A sketch and brief analysis of five curriculum schemes that the author thinks have been used in this country.

Higgins, E. E. Suggestions for Enriching the Content Subject. *Detroit Journal of Education,* 3:166-69 (December 1922).

An article based on the actual experiences of the author's school.

Hines, Harlan C. *Junior High School Curricula.* Macmillan Co., 1924. Pp. 188. Bibliography.

Brief summary of selected proposals for junior high school courses of study, especially in mathematics, languages, social studies, science, and the arts.

Holley, C. E. Curriculum Differentiation and Administration in Typical High Schools. *Educational Administration and Supervision,* 1:332-40 (May 1915).

A survey of the courses offered by 54 high schools throughout the country.

Hollister, Horace A. Constants and Variables in the High School Program of Studies. *Education,* 32:69-74 (October 1911).

Gives a definition and illustrations of constants and variables.

Hollister, Horace A. *High School Administration.* D. C. Heath & Co., 1909. Pp. 379.

Pages 116-155 deal with the character, conditions, and details of the program of studies for the secondary school.

Horn, Ernest. An Application of Scientific Method to Making the Course of Study in Civics. *Elementary School Journal,* 19:762-77 (June 1919).

An application of studies made by different men, finding that a course should grow out of social needs of the community. An illustration of how to construct a curriculum in civics by having the raw material at hand.

Hudelson, Earl. Curriculum Making. *Educational Research Bulletin,* University of Minnesota, January 1924, pp. 3-13. Bibliography.

Proposes the need and illustrates a method of finding activities to attain objectives.

Hunter, Fred M. The Superintendent as a Leader in Interpreting the Curriculum. *Educational Administration and Supervision,* 4:271-80 (May 1918).

A number of good principles and criteria which anyone may use in evaluating high school curricula.

Inglis, Alexander. *Principles of Secondary Education,* pp. 367-90. Houghton Mifflin Co., 1918. Pp. 741. Bibliography.

A general treatment of the curriculum from historical, comparative, and determining standpoints, with discussion of criteria for determining values and the place of subjects in a program.

Johnson, Franklin W. *The Administration and Supervision of the High School.* Chapter XVII, pp. 321-38, on Curricula and Courses of Study. Ginn & Co., 1925. Pp. 402. Bibliography.

Presents a general discussion, with six guiding principles, proposes a single curriculum for the junior high school, one for the three-year senior high school, and one for a four-year high school.

Johnston, Charles H. Curriculum Adjustments in Modern High Schools. *School Review,* 22:577-90 (November 1914).

An early prophecy of the present curriculum concern, defining curriculum as a definitely arranged group of subjects designed to care for the vocational expectations of pupil groups interested most in methods of organizing courses of study into curricula.

Johnson, Charles H. *The Modern High School,* pp. 230-33. Charles Scribner's Sons, 1914. Pp. 848. Bibliography.

Discusses in a general way matters relative to the elasticity of the course of study.

Johnston, C. H., Newlon, J. H., and Pickell, F. G. *Junior-Senior High School Administration.* Charles Scribner's Sons, 1922. Pp. 399. Bibliography.

A good general treatment of curriculum organization, treating of such curriculum topics as definitions, differentiation, organization, prevocational and vocational programs.

Jones, Arthur J. Professional Curriculum of the College of Education in Light of Job Analysis. *Journal of Educational Research,* 10:242-50 (October 1924).

Discusses teacher training in the light of analyses of teacher activities, holding

that the more recent additions of subjects in teacher training curricula are the result of the influence of teachers' activities. Presents a statement of the effect of activity analysis upon procedures in teacher training.

Judd, Charles H. The Curriculum and Social Progress. *Detroit Journal of Education,* 3:76-80 (October 1922).

Presents the need for an expansion of the curriculum corresponding to the expansion of modern life.

Judd, Charles H. Scientific Technique of Curriculum Building. *School and Society,* 15:1-10 (January 7, 1922).

Emphasizes the need of curriculum specialists to make a continuous collection of newer types of material, to determine the proper placement for the effectiveness and economy of teaching, and to develop a technique for formulation of the material.

Judd, Charles H. How Modern Business May Aid in Reconstructing the Curriculum. *School and Society,* 17:281-87 (March 17, 1923).

Business in its eagerness to see curriculum revision has offered many suggestions of varying value, often disturbing administration of traditional material. "What is needed is a strong central body ready and able to marshal the energy and resources of the schools in a broadminded reconstruction of the curriculum."

Junior High School Curricula. *Educational Administration and Supervision,* 10:574-604 (December 1924). Bibliography.

Three reports prepared by committees from a summer class in Teachers College, Columbia University: principles, proposed curricula, comment on courses, and standards for junior high schools—small and large.

Keller, Paul G. W. Rebuilding of a Course of Study. *School Review,* 32:49-52 (January 1924).

An exposition of what was done in Waukegan (Illinois) secondary schools to rebuild their courses of study.

Kilpatrick, William H. Method and Curriculum. *Journal of Educational Method,* 1:313-17; 1:367-74 (April-May 1922).

A statement of the interrelation of method and curriculum, emphasizing our need for a better conception of subject matter.

Kilpatrick, William H. Subject Matter and the Educative Process. *Journal of Educational Method,* 2:94-101 (November 1922); 2:230-37 (February 1923); 2:367-76 (May 1923).

A presentation of the philosophy underlying the project method, with special application to the curriculum.

Kilpatrick, William H. *Source Book in the Philosophy of Education.* Macmillan Co., 1923. Pp. 365.

Some excellent source material on the educative process with reference to subject matter and curriculum is presented on pages 279-297.

Knight, F. B. Analysis of Teaching and Teachers. *Journal of Educational Research,* 10:222-27 (October 1924).

States that no analysis is of value until the curriculum has been determined.

Koos, Leonard V. *The Junior High School.* Harcourt, Brace & Howe, 1920. Pp. 179.

Pages 97-146 present a detailed treatment of types and varieties of programs of studies for the junior high school.

Kyte, George C. The Coöperative Development of a Course of Study. *Educational Administration and Supervision,* 9:517-36 (December 1923).

An account of the coöperative construction, with criteria adopted, by teachers and administrators of a course of study in history and civics for the elementary schools of Berkeley, California.

Lull, H. G. The Social Core of the High School Curriculum. *School Review,* 26:7-17 (January 1918).

"There should be no subjects prescribed for all students of the high school which do not deal directly with problems of health, citizenship, and the means of communication through the vernacular."

Mackie, Ransom A. Progressive High School Reorganization. *Education,* 33:337-43 (February 1913); 33:420-27 (March 1913).

Outlines of Boston and Berkeley (California) programs of study, with criticisms.

Marsh, John A. Making a High School Program. *Educational Administration and Supervision,* 6:202-14 (April 1920).

Recommends greater teacher participation in program making, the mechanics of which are outlined.

Meriam, J. L. *Child Life and the Curriculum.* World Book Co., 1920. Pp. 538.

Criticism of the traditional curriculum, principles in the making of elementary school curricula, suggested contents and method; emphasis on activity growing out of the lives of the pupils.

Miller, E. L. Report of the Committee on Curriculum. *Third Yearbook National Association of Secondary School Principals,* 1919, pp. 51-52.

Advocates not the elimination of subjects but rather reform so that each one shall be justified by the Cardinal Principles of Secondary Education.

Miller, E. L. and others. Proposed Secondary School Curriculum. *Detroit Journal of Education,* 3:105-109 (November 1922).

A statement of nine basic principles for what should constitute the core and what the elective subjects in a secondary school curriculum. A core curriculum proposed for grades 7-12.

Miller, H. L. and Hargreaves, R. T. *The Self-Directed School,* pp. 116-215 *et passim.* Charles Scribner's Sons, 1925. Pp. 412.

Applies to curriculum theories of authors concerning self-direction by pupils.

Minor, Ruby. Making the Course of Study. *Elementary School Journal,* 22:655-664 (May 1922).

Tells how to get the entire staff of teachers interested in making a course of study.

Moore, Ernest C., editor. *Minimum Course of Study.* Macmillan Co., 1922. Pp. 402.

Reports of committees of southern California teachers on the minimum essentials of seventeen elementary school subjects: aims, investigations, recommended courses, and bibliographies.

Mort, Paul R. and Devricks, Robert K. An Accounting of General Values in the Small High School Curriculum. *School Review,* 29:119-34 (February 1921).

Data from 374 questionaires sent to graduates of ten township high schools seeking their opinions as to subjects studied as basis of values in curriculum readjustment.

Mossman, Lois Coffey. An Analysis of the Theories Basic to Curriculum Construction. *Teachers College Record,* 26:734-39 (May 1925).

Four assumed functions of the school extended to the source of impetus to activity and its direction, the nature of method, the function of method, the method of determining subject matter, the function of subject matter, its organization, psychological theory, respect for personality, social theory, subordination of activities and subject matter, and flexibility of procedure.

Myers, Garry C. Some Factors Affecting Content for the Curriculum. *Educational Administration and Supervision,* 1:611-16 (November 1915).

Discusses a number of powerful factors that tend to prevent our schools from having the most desirable curricula.

McMurry, Charles A. *How to Organize the Curriculum.* Macmillan Co., 1923. Pp. 358.

History and present status of the elementary school curriculum; suggestions for the organization of studies; illustrations of projects in history; suggested outlines of courses of study in history, geography, science, and literature.

McMurry, Frank M. Principles Underlying the Making of School Curricula. *Teachers College Record,* 16:1-10 (September 1915).

A draft of the principles which author regards as fundamental to curriculum making.

National Education Association. Facts on the Public School Curriculum. *Research Bulletin,* Vol. 1, No. 5. National Education Association, 1201 Sixteenth St., Washington, D. C.

After some facts of general interest presents a summary of statutory and state board of education requirements relative to elementary school curricula, facts on time allotments for subjects in elementary and junior high schools, results of votes

of expert opinion as to books most helpful on curriculum problems, and a list of representative elementary courses of study published since 1920.

Newlon, Jesse H. The Need of a Scientific Curriculum Policy for Junior and Senior High Schools. *Educational Administration and Supervision,* 3:253-68 (May 1917).

Recounts as typical development of curricula plans at Decatur, Illinois, high school: 1) single curriculum, 2) guided election by individual pupils, 3) system of group elections, 4) curricula for definite groups; points out diversity of practice regarding constants and sequences; advocates curriculum making by teachers.

Norton, John K. A General Survey of the Curriculum Situation. *Journal of Educational Research,* 10:149-153 (September 1924).

There is a lack of reasonable uniformity in curriculum practice, of definite educational aims, of new types of materials, of an adequate clearing house for expert opinion.

Peters, Charles C. *Foundations of Educational Sociology.* Macmillan Co., 1924. Pp. 447. Charts.

Outlines a scientific adjustment of educational programs to meet the need of the present.

Phelps, C. L. Practical Difficulties in Curriculum Making. *American Educational Digest,* 43:198-200 (January 1924).

Examines some of the more important difficulties facing those who are trying to improve elementary education, discusses some fundamental considerations, and reviews some constructive suggestions.

Philadelphia, Survey of Schools, 1922. Pennsylvania State Department of Public Instruction, Harrisburg.

Volumes III and IV present the conditions found in the secondary schools, and offer constructive criticisms and recommendations for improvement.

Rapeer, L. W. A Core Curriculum for High Schools. *School and Society,* 5:541-549 (May 12, 1917).

Emphasizes as a basis for a five- or six-year high school curriculum the need of a philosophy of social efficiency, with sub-aims of health, vocational, avocational, civic, and moral efficiency; presents sixteen guiding principles; and proposes a resultant curriculum.

Report of Special Committee on Specified Entrance Units to Association of Colleges and Secondary Schools of the Southern States. Pp. 149-58. 1922.

Recommends, after discussion, units that committee thinks should be required.

Report of the Committee of the University of Illinois High School Conference, W. C. Bagley, Chairman. Program of Studies and Interrelationships between Elementary Schools and High Schools. *School and Home Education,* 33:134 (December 1913).

Proposes, first, that the problem of "distinguishing between the fundamental

and accessory elements in our courses be attacked systematically and definitely"; and, second, that courses of study include suggestions of the best methodology.

Rugg, H. O. Curriculum Making: What Shall Constitute the Procedure of the National Committee? *Journal of Educational Psychology,* 15:23-42 (January 1924).

Criticizes the work of the National Committee on Mathematical Requirements as subjective and compares it with Thorndike's studies on the psychology of algebra as scientific; states as three major problems: (1) abilities and interests of pupils, (2) materials necessary for growing youth and prospective citizen, (3) arrangement and grade placement of selected materials; proposes as proper functions of national curriculum committees: (1) to act as a deliberative body of specialists, stating aims and criteria, (2) to organize investigations of social and psychological needs underlying curricula, and (3) to serve as a clearing house for discussion.

Salisbury, Ethel I. The Construction of a Course of Study. *Educational Administration and Supervision,* 6:381-87 (October 1920).

Presents an elaborate plan involving coöperation of superintendent, principal, and teachers for making syllabi of courses of study; argues for definite provision of time and money for the work; and proposes seven steps of development.

Salisbury, Ethel I. Administrative Uniformity of the Curriculum. *Educational Administration and Supervision,* 3:275-79 (May 1917).

Presents conflicts regarding curriculum uniformity between practice and theory.

Sleight, W. G. *The Organization and Curricula of Schools.* London: Edward Arnold & Co., 1920. Pp. 264.

Principles of the curriculum, with application to British elementary and secondary schools.

Smith, Preserved. The Unity of Knowledge and the Curriculum. *Educational Review,* 45:339-44 (April 1913).

Coördination of instruction rather than fragmentary teaching is urged.

Snedden, David. Planning Curriculum Research. *School and Society,* 22:259-65 (August 29, 1925); 287-94 (September 5, 1925); 319-28 (September 12, 1925).

Introducing the terms *peth* and *strand,* author proposes to ascertain "those activities which common sense and expert judgment decree to be of much importance, and preparation to exercise which are not provided for at all completely by extra-school agencies"; emphasizes the difficulty of deciding how much is needed; criticizes work of Bobbitt, Charters, and Rugg and Hockett.

Snedden, David. High School Reorganization: Some Practical Next Steps. *Educational Administration and Supervision,* 8:80-98.

Deplores the present control of secondary education by higher institutions; suggests and urges changes, advocating that there should be distinct secondary institutions for liberal and for vocational education.

Snedden, David. Bobbitt's Curriculum Making in Los Angeles. *School Review,* 31:104-108 (February 1923).

Suggests that "case groups" be distinguished as sociological basis for measurement of educational values in terms of predictable conditions and needs, that quantitative be added to qualitiative analysis, and that evaluation be made of extra-school contributions to the total educational process.

Snedden, David. The Character and Extent of Desirable Flexibility as to Courses of Study and Training for Youths of 12-14 Years of Age. *Educational Administration and Supervision,* 2:219-34 (April 1916). Also in *Proceedings of National Education Association,* 1916, pp. 965-76.

Discusses the present situation, unlike ends or objectives, a possible curriculum for junior high schools, the varying educational needs of children 12-14 years old, the elective system, and the controlling principles of flexibility.

Springfield, Massachusetts. *Survey Report of Public School System, 1924.* Pp. 173.

Presents nine fundamental principles in light of which curricula and courses of study for both the junior and senior high schools should be developed.

Stevenson, J. A. The Project and the Curriculum. *School and Home Education,* 38:146-61 (March 1919).

States that the curriculum is based on facts, principles, processes, and projects; emphasizes and illustrates the use of the project.

Stockton, James L. The Overcrowded Elementary School Course of Study. *Elementary School Journal,* 21:678-87 (May 1921).

"Dependence should be put not alone upon elimination of material already scheduled, but also upon a reorganization of subjects which diminishes their number and which takes account of 'cumulative effect,' stages of mental growth, and correct spiral order."

Stout, J. E. *The Development of High School Curricula in the North Central States, 1860-1918.* Supplementary Educational Monographs, No. 3, University of Chicago, 1921. Pp. 322. Bibliography, pp. 292-316.

A detailed historical study: briefly sketches the early high school movement, treats of subjects and their organization into curricula, analyzes the subject matter in the several subjects to show changes and conditions at several periods, and discusses in separate chapters the subject matter in various fields.

Symposium: Radical Changes in Curriculum. *American Educational Digest,* 43:195-197 (January 1924).

School executives tell of urgent needs in a composite of 1375 judgments.

Threlkeld, A. L. Curriculum Revision: How a Particular City May Attack the Problem. *Elementary School Journal,* 25:573-582 (April 1925).

Says that in the Denver revision these principles have been followed: "(1) The participation of the local professional corps must be procured as a basis for the

entire program. (2) Definite administration and supervision of the local corps is essential. (3) The most advanced educational thought of the profession as a whole should be incorporated. (4) Curriculum revision should be continuous."

Tillinghast, Charles C. Current Studies in Curriculum Analysis. *Ninth Yearbook National Association of Secondary School Principals,* 1925, pp. 98-112.

A descriptive summary of curriculum research in various places and an appreciative estimate of the importance of the problem.

Vermont, A Study of Education in. Carnegie Foundation for the Advancement of Teaching, 1913. Pp. 241.

A criticism of the courses of study of the elementary (pp. 44-48) and secondary (pp. 81-90) schools. "No study or group of studies has any importance for its own sake; its value consists altogether in the extent to which it assists a teacher in bringing a pupil into those relations with his environment that are agreeable, stimulating, and promising for him personally and profitable to society. The curriculum should include any body of instruction that can be successfully organized to this end and for which there is a demand. But its real potency consists not in itself, but in the intelligence with which it is applied."

Waples, Douglas. Indexing the Qualifications of Different Social Groups for an Academic Curriculum. *School Review,* 32:537-46 (September 1924).

Asserts that the common academic curriculum favors the pupil on the upper social-economic level; tests his thesis by a study of the pupils in the Homestead, Pennsylvania, High School; and presents criteria for testing the value of the single curriculum.

Ward, L. C. The Curriculum of the Modern Six-Year Secondary School. *School Review,* 26:282-85 (April 1918).

A statement of the aims of secondary schools and a proposal of the contents of a six-year curriculum.

Weeks, Arland D. The Curriculum and Democracy. *Journal of the National Education Association,* 14:81-82 (March 1925).

Urges from point of view of the economist that the curriculum should prepare the child to be a producer, for the leisure hours of the worker, and for intelligent consumption.

Wells, Margaret E. *A Project Curriculum.* J. B. Lippincott Co., 1921. Pp. 338.

For each of the first three grades of the elementary school a major project large enough to provide a basis for most of the work of the year, with included minor projects related to the major purpose and providing the major daily activities; guiding principles in curriculum making; and analysis of proposed outcomes.

Whitten, C. W. Curriculum Construction and Objectives for Secondary Education. *School and Home Education,* 39:81-84 (December 1919).

Discusses curriculum making in the light of the seven cardinal objectives of education.

Willard, Eda G. A Project in Curriculum Making. *Journal of Educational Method,* 2:207-11 (January 1923).

Gives some standards and describes the making of a curriculum by supervisors and teachers, with an interesting point of view.

Willard, F. R. The Objectives of Education as a Basis for Curriculum-Making in High Schools. *School and Society,* 10:9-12 (July 5, 1919).

Discusses with approval the Cardinal Principles of Secondary Education.

Wilson, H. B. The Community and the Development of the Course of Study. *School and Home Education,* 31:97-99 (November 1911).

Advocates and illustrates from the experience of Decatur, Illinois, the advisability of using "the wisdom of the community" in constructing courses in study.

Wilson, M. G. The Reorganization of Courses of Study for Modern Rural Life. *School and Home Education,* 39:26-28 (October 1919).

Presents three principles of curriculum making, suggests and illustrates eliminations and inclusions, and sets down thirteen principles of organization which should support and guarantee courses of study.

Withers, John W. Professional Curriculum of the College of Education in Light of Job Analysis. *Journal of Educational Research,* 10:251-56 (October 1924).

Advocates the analysis of the vocations for which students are preparing, the determination of qualifications and ideals necessary for success, and the presentation of materials that will help teachers understand life and the functions of education in it.

Withers, John W. How the Course of Study Should be Determined. *Proceedings of National Education Association,* 1914, pp. 235-44.

The educative process is an observable transaction taking place in the physical world and determined by the educative situation and response. On this basis the author discusses three processes that influence the determination of the course.

Yocum, A. Duncan. The Determinants of the Course of Study. *Proceedings of National Education Association,* 1914, pp. 223-35.

The bases for course of study making are summarized, with special emphasis on classification and distribution.

Young, James Reed. Reorganization of the High School Curriculum. *Educational Review,* 53:122-36 (February 1917).

Says that changes in social and economic conditions call for changes in the curriculum, that it should begin with the needs of pupils, stand for equality of opportunity, and modernize the idea of culture; applies principles to several subjects.

THE MAKING OF A COURSE OF STUDY IN HEALTH FOR A SPECIFIC SITUATION*

By THOMAS D. WOOD
Adviser in Health Education, Teachers College

AND RUTH STRANG
Part-Time Instructor in Health Education, Teachers College

THE method of making this tentative course of study in health may be of value to others who, until the results of more thorough and adequate research in curriculum making are available, must make a temporary course of study for a specific group. For the health of children does not flourish by a laissez-faire policy. Uncorrected defects and undesirable health habits often result in a permanent handicap for the individual. It would seem better to attempt to find and solve the most obvious health problems of a given group by a somewhat faulty procedure than to leave them unsolved while waiting for a more perfect method of curriculum construction.

The group for whom this course of study is made has in common the following characteristics: It is an elementary school group in grades one to six inclusive, and of the ages from five to fourteen; the children are of average or superior intelligence and superior social and economic conditions; they will probably all go to high school, and also to college, professional, or "finishing" school; they will probably as adults engage in professional or social activities similar to those of their parents.

Three steps were taken in making a course of study in health for this group. First, the health needs of each grade were determined; second, the habits, attitudes, and knowledge necessary to meet these needs were worked out in detail; and third, some of the school situations in which this subject matter might most naturally be taught were suggested.

The health needs were determined first by giving to each teacher of the Horace Mann Elementary School in the spring of 1924 a list

* This study was made possible by the coöperation of Mr. Henry C. Pearson, principal of Horace Mann School, Mrs. McCastline, Miss Betzner, Miss Burke, Mrs. Meadowcroft, Miss Evelyn Batchelder, Miss Mildred Batchelder, Miss Trask, Miss Lewis, Miss Young, Miss Baker, Miss Coffin, Miss Robbins, Miss Frawley, Miss Condry, Mrs. Upton, Miss Beust, Miss Peabody and Miss Kirchwey, teachers in the Horace Mann School.

of the problems found through analysis [1] of twenty recent courses of study, and fourteen textbooks on health. The teachers were asked to—

"I. Draw a line through those problems which you think do not need to be taught in the Horace Mann School.

II. Then mark those which you consider the most outstanding health problems of the children in your grade.

III. Add any other problems that seem to you important.

IV. Of these most outstanding health problems mark in the second column those which from the standpoint of interest and difficulty seem most appropriate for your grade."

It is of course difficult to say whether any problem need not be taught since the individuals in classes differ from year to year. It was probably for this reason that few problems were crossed out. No new problems were added to this list by the teachers. The only problems that three or more teachers thought unnecessary to teach in the Horace Mann School were problems of personal cleanliness; clothing; alcohol and tobacco; discovery, prevention and treatment of defects. One parent, however, when asked what health problems she thought should be taken up in school said, "I have most trouble in interesting my daughter in caring for her hair and nails properly. Anything that could be said in school to re-enforce our efforts at home would be most welcome." Incidentally this illustrates the fact that the aim of much of the health education in a group of this kind must be to make the child more willing, rational, and reliable in his coöperation with his parents in health matters.

The problems considered important by the teachers were further checked by comparing them with the deficiencies found through the annual health examination given to each child. It will be seen from the tabulation that follows that tonsils and adenoids have been problems for more than half of these children. Probably this item was not checked by the teachers because they felt this problem was being adequately handled for individuals by the doctor's office. However, practices which would make the condition of the throat and nose more healthy, such as "breathing through the nose," "covering face with handkerchief when coughing and sneezing," and "keeping objects out of the mouth," have been checked by a large proportion of the teachers. According to the examination figures, a small percentage, decreasing from grade to grade, show dental caries. This shows good dental service, but it does not necessarily show good care of the

[1] This analysis was originally made as a basis for the Gates-Strang Health Knowledge Test, but was used for this study also.

teeth by the children. On the other hand, the amount of tartar on the teeth increases from grade to grade. Perhaps through education in oral hygiene this latter condition might be improved and the number of cavities that needed to be filled by the dentist might be decreased. The results of the habit questionaire indicate a lack of regularity in cleaning the teeth at night and in some cases a type of food unfavorable for healthy teeth and gums. Moreover, from the standpoint of adult needs, if it be true that "*one* out of five *has* it" the proper care of the teeth is an important problem. The significance of the other items need not be specially pointed out. A second check on the importance of these problems was the results of the following habit questionaire filled out by most of the children in the school.

YOUR DAILY SCHEDULE

What time did you get up this morning? .....
Is that the time you usually get up? .....
Do you usually drink a glass of water soon after you get up? .....
What did you have for breakfast this morning?

Kind of food	How much of it
.....	.....
.....	.....
.....	.....
.....	.....

Is this the kind of breakfast you usually have? .....
How long did you spend eating breakfast this morning? .....
Did you have a bowel movement yesterday? .....
What did you eat between meals yesterday and at what times did you eat it?
.....
Do you usually do this? .....
How many glasses of water did you drink yesterday? .....
Is this the number you usually drink? .....
Did you wash your hands before eating lunch yesterday? .....
Do you usually wash your hands before eating lunch? .....
How many cups of tea or coffee did you drink yesterday? .....
What did you have for lunch yesterday?

Kind of food	How much of it
.....	.....
.....	.....
.....	.....
.....	.....

Is this the kind of lunch you usually have? .....
How long did you spend eating lunch yesterday? .....

Do you sit with feet flat on the floor, hips well back against the seat, and abdomen in?
All of the time? .....
Most of the time? .....
Only when reminded of it? .....
Do you stand with feet pointing straight ahead, knees relaxed, abdomen in?
All of the time? .....
Most of the time? .....
Only when reminded of it? .....
What did you do from 1:30 to 3:00 yesterday? .....
.....
What did you do from 3:00 to 6:00 yesterday? .....
.....
Is this the way you usually spend the afternoon? .....
What did you eat for your evening meal yesterday?

Kind of food	How much of it
.....	.....
.....	.....
.....	.....
.....	.....

Is this the kind of evening meal you usually have? .....
What did you do last evening? .....
.....
Did you clean your teeth before going to bed yesterday? .....
At what time were you in bed yesterday? .....
Is this the time you usually go to bed? .....
Did you have your windows open last night? .....

Supplementary Directions to Teacher:

Whenever the question "Is this what you usually do?" is asked, write down the variations from the previous answer. The questions are asked in this very definite form so that the children will give more accurate answers. By means of the second question we can find out if this particular day was for any reason unusual.

At the right hand side of the paper, write the child's attitude toward the activity, if you can get at it easily by your general observations or by such questions as "Do you like to do this?"—"to eat this?" etc., "Do you do this of your own accord, or because your mother or nurse tells you you must?" At the end of the paper give estimate of child's attitude toward healthful living.

Add any remarks about mental habits or other health habits not mentioned here, which you think should be included.

In the first three grades the questionaires were filled out by the teachers in an interview with each child. In the other grades they were filled out by the children as a group exercise. A few were filled out by parents also and these agreed closely with the ones filled out by the children. These questionaires showed quite clearly deficiencies in some of the most important health habits. We hoped to discover similar deficiencies in health knowledge by giving Form I

of the Gates-Strang Health Knowledge Test, but this could not be arranged this year. Some of the test exercises, however, were given to the sixth grade girls, and deficiencies in knowledge relating to the problems are tabulated. Exercises relating to all the problems were not given, so a blank space in this column does not mean adequate knowledge of the problem.

A fourth indication of health problems was obtained from the results of a questionaire sent to a group of professional women by Miss Harriet Fitzpatrick, a graduate student of Teachers College. It was assumed that this professional group of women might have had health deficiencies similar to those of this group of children when they became adults and that the course of study should include such material as would be useful in preventing these deficiencies.

No systematic record of attitudes was obtained. In the interviews, however, the children in the first three grades chatted freely of their likes and dislikes. Some "loved milk, carrots, peas." A few "did not like milk," one "didn't like cereal at all." Most were amazed that the question about tea or coffee should be asked, and they answered very decidedly "none, of course." Liking to have their windows open at night was also general. One second grader said, "The children across the street have their windows closed, and they're white-faced children, Heavens!" The majority accepted the food served to them and their daily activities as a matter of course, and remarks such as the following were the exception rather than the rule: "I gobble it (breakfast) down, I don't like to eat." "I never feel like eating my cereal, I eat what I feel like." "My sisters (in the 6th grade) gobble, I don't want to get indigestion." "Eating between meals spoils my dinner." In the fourth, fifth and sixth grades no record of attitudes was obtained.

Of the adult group 81 per cent enjoyed walking the most of any leisure time activity; 76 per cent enjoyed attending the theatre, concerts, lectures most; 64 per cent, reading; 62 per cent, automobile riding; 56 per cent, swimming; 51 per cent, outdoor games; 48 per cent, social dancing. Forty-eight per cent enjoyed playing indoor games least; 31 per cent enjoyed attending social professional clubs least; 26 per cent enjoyed card games least. This group gave the following place to the various health essentials—

First place	—The right food
Second	—Sufficient sleep
Third	—Exercise

Fourth —Cheerful disposition
Fifth —Ability to get along with people.

The original list of problems and the findings from the above mentioned sources follows on pages 230 to 245.

After a list of the most prominent problems in each grade was thus obtained, an analysis of what to do to solve these problems, and reasons for doing it, was made for each grade. In doing this the lists of facts obtained from courses of study and textbooks on health, and scientific subject matter books were helpful; the former in determining which facts were appropriate for a given grade and the latter in determining the facts necessary for solving the problems. Many of the same problems occur in each grade. This is desirable educationally for it provides for review and repetition of facts and habits learned in previous grades. The problem of caring for the teeth is one of the recurring problems. In Grade I the following habits, attitudes, and knowledge relating directly or indirectly to the health of the teeth are suggested:

"Asks mother for some hard toast, zweibach, lettuce, tender young raw cabbage, apple, or some other good hard food to chew in each meal."
"Keeps fingers out of the mouth."
"Knows how to brush teeth properly."
"Goes willingly to the dentist every three months to have teeth looked over."
"Is careful not to bite thread, nuts, or hard candy."
"Eats fruit at the end of the meal."
"Uses one quart of milk daily."

In Grade II these are re-emphasized if necessary and the following added—

"Keeps tooth brush well sunned and aired and in a place by itself."
"Knows the characteristics of a good tooth brush."
"Cleans teeth carefully every night, and after meals."

In Grade III—

"Chooses fruit, crisp oatmeal and graham or molasses cookies rather than soft rich cake and crackers."
"Milk helps to build good teeth."
"Vegetables and fruit help to build good teeth and keep them clean."

In Grade IV—

"Chooses whole wheat bread instead of white bread part of the time."

[*Text continued on page* 246]

PROBLEMS AND FINDINGS

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades*						Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations. Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire.					
	I†	II	III	IV	V	VI	I	II	III	IV	V	VI
Food Problems (Good Eating Habits)							Less than 20 min. for breakfast.					
Chewing food thoroughly	1	1	1	1	2	2	Q. 35%	20	41	42	53	44
Having meals at regular times	1	1	1	1	1							
Not eating anything between meals (a mid-afternoon lunch if eaten regularly is counted as a regular meal, also a mid-morning meal)	2	1	1	1	1		Less than 30 min. for lunch. (This is a very generous time allowance.)					
Not eating sweets between meals	2	1	1	3	1		Q. 31%	9	32	40	53	40
Being calm and cheerful while eating	2	1	2		2		Eating sweets between meals—cake, candy, soda, etc.					
Resting before and after eating	3	1	2		2		Q. 11%	17	8	17	30	44
Not eating too large a volume of food at one time	1	1	1	2	2		Not resting after lunch.					
Choosing plain wholesome food whenever choice is offered		2	1	2	3	2	Q. 37%	40	31	53	70	75
Helping to make meals attractive		1	1		2	2						
How to avoid common disorders of the digestive system		1		1	1	2	Not choosing plain, wholesome food.					
							Q. 5%	2	8	19	20	16
							Drinking tea and coffee occasionally.					
							Q. 8%	9	3	0	7	9
Food Problems—Water							Does not drink water on rising.					
Drinking the right amount every day	3	1	2		3	2	Q. 48%	50	71	40	50	41
Drinking water at the right times	3	1	1	3								
How to secure pure water—water supply		1			1	2	Less than 4 glasses daily.					
Avoiding infection from drinking cups	3	1	1	1	2	2	Q. 53%	32	25	32	19	4
Food Problems—Choice of Food							Uses less than one quart of milk daily.					
Using sufficient milk each day	2	1	2	2	2		Q. 38%	30	31	59	50	34
Securing pure milk			1		1							
Buying of milk			1		1							
What to serve with milk in a meal		1	1		1	2	Eats no fresh fruit or raw vegetable daily.					
Eating some vegetables and fruit every day	2	2	2	2	3		Q. 23%	20	12	17	10	6
Cooking and preparation of vegetables and fruit					1	2	Eats less than 3 vegetables (including potatoes) daily.					
Buying fruit and vegetables			1		1	2	Q. 41%	28	29	28	37	33
What is the place of meat, fish, eggs, nuts in the diet?					3	2						

* Total number of teachers reporting for each grade: Grade I, 3; Grade II, 2; Grade III, 2; Grade IV, 4; Grade V, 3; Grade VI, 3.

† Grades.

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionaires Answered by 96 Adult Professional Women
37% did not know that safe water for drinking contains no disease germs. 30% did not know that water could be made safe by boiling.	
55%—did not know that 4 cups of milk daily is best. 30%—that lettuce is valuable for vitamins and minerals 47%—the protein foods. 33% advocated 8–16 ounces of meat daily.	

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI		I	II	III	IV	V	VI
Food Problems—Choice of Food (*Continued*)													
Are we getting enough mineral matter in our diet?					3	2	Eats no green leaf vegetable daily.						
Are we getting enough vitamins in our diet?				1	3	2	Q. 51%	40	50	43	40	33	
What is the place of cereals in the diet?	1		1	2	1		Eats meat more than once a day						
Best way of cooking cereal			1				Q. 10%	7	9	15	19	14	
Buying cereal			1		1		Eats no cereal for breakfast.						
Production of cereal			1	1	1		Q. 18%	30	12	19	30	28	
Place of sugar in the diet			1	3	1	2							
Place of fat in the diet			1	1	1	2							
Cooking of fat					1	2	Does not have fruit, cereal, milk, and toast or bread for breakfast.						
What foods shall we eat for breakfast?	1	1	2	1	2	2							
What foods shall we choose for supper or lunch?		1	2	2	1	2	Q. 35%	56	47	63	52	50	
What foods shall we choose for dinner?		1	2	1	1	2	Does not have a vegetable or fruit, bread or cereal, and milk (simple dessert or egg if desired) for lunch or supper.						
How to overcome aversions to certain foods				2	1	2							
What are good foods from which to choose?	1	1	1	4	1	2	Q. 47%	28	37	63	54	74	
What different classes of foods are needed each day?	1	1	2	1	2	2	Does not have meat or fish or beans or egg, two vegetables (a simple dessert and soup if desired) for dinner.						
How many calories are needed each day for a child of a given age?			1		3	2							
How many calories are in the common foods we eat?			1		3	2	Q. 17%	9	29	28	26	26	
Why is the right kind and amount of food important?			1	1	2	2							
Food Problems—Buying and Care of Food													
What is the relation of cost to food values?					2								
How to care for food in the home					2								
What are the signs of a sanitary store?				1	1	2							
How does the government protect us from impure food?			2	1	1	2							
Problems in Connection with Disease													
How to build resistance to diseases					1	2							

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionaires Answered by 96 Adult Professional Women
65% did not know that calcium is needed in largest amounts for building bone. 22%—the function of vitamins; and 12% the best sources. 20%—sources of iron. 32% did not know the starchy foods. 32% did not choose the best foods for a school lunch. 12% did not choose the best combination for a child's supper. 18% did not choose the most healthful dinner. 65% did not know the number of calories in a glass of milk, or a slice of bread.	40% reported a breakfast of toast, jam, coffee or milk. 42%—of fruit, cereal, milk or coffee. Only 2%—hot bread, eggs or meat, coffee or milk. 11% reported a lunch of meat, potatoes, bread and butter, pie or cake. 40%—salad, milk, bread and butter. Only 5%—sandwich, ice cream soda or sundae. 84% reported a dinner of soup, meat, potato and another vegetable salad, and dessert. 11%—a vegetable plate and dessert. Only 3%—clear soup, meat, potato, pie or cake.

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
PROBLEMS IN CONNECTION WITH DISEASE (*Continued*)												
How to prevent spread of disease...				1	1							
How to get rid of flies, mosquitoes, and other insect pests which carry diseases					1	1						
Study of bacteria—What they are and what they do					1	2						
How bacteria may be killed				1	2							
Prevention and treatment of colds					1							
Treatment of other specific diseases												
How children of different age can help in the care of the sick in their homes					1							
How to cook and serve food for invalids					1							
Prevention and treatment of adenoids and enlarged tonsils							Enlarged tonsils. Ex. 33%	20	15	22	22	16
How the trained nurse takes care of the sick—Work of public health nurse			1		1		Tonsils out. Ex. 51%	50	57	57	52	58
Quarantine—why							Cervical glands slightly enlarged. Ex. 53%	30	37	37	28	31
							Cervical glands — marked enlargement. Ex. 4%	3	5	4	4	0
PROBLEMS IN CONNECTION WITH CLEANLINESS												
How to care for hands and nails	2	1	1	2	3		Q. Do not wash hands before eating.					
Taking baths	2	1	1		1		10%	9	4	12	35	19
Keeping objects out of the mouth	3	1	3	4	1							
Care of handkerchief	1	1	1	1	1							
Having clean clothes	1	1	1	2	1							
Care of clothes	2	1	1	1	1							
Cleanliness in the school. How the child can help	3	1	1	1	3							
How the child can help keep home clean		1	1		1							
How surroundings of home can be made more beautiful		1	1	1	1							
How the community helps to keep our homes and surroundings clean —Disposal of waste and garbage		1	1	2	1							

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionnaires Answered by 96 Adult Professional Women
31% did not know that people get disease germs most often from fingers and food. 60% thought the most common way for bacteria to enter the body was through the skin. 21% did not know the breeding place of the fly. 36%—the breeding place of the mosquitoes. 30%—the relation between mosquitoes and malaria. 50%—the best treatment for colds. 21% did not think it necessary to be careful not to sneeze or cough over food.	"Colds" reported 2 or 3 times a year or oftener by 43%. "Frequent colds"—30%. Tonsilitis—33%. Weak throats—18%. Annoying catarrh—11%.

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
PROBLEMS IN CONNECTION WITH CLEANLINESS (*Continued*)												
How to keep skin healthy		1	1	1	1							
Having clean food to eat, and clean dishes to eat from	1	1	1	1	1							
Proper use of toilet	2	1	1		1							
PROBLEMS IN CONNECTION WITH BREATHING AND AIR							Ex. Adenoids out.					
Breathing through the nose	1	2	2	3	1		84%	55	53	57	57	58
Deep breathing		1	2	3	1							
Having fresh air at all times	1	1	2	3	1		Q. Windows not open at night.					
Avoiding dry, dusty, impure air		1	2	3	1		7%	0	0	0	2	0
Maintaining air at a good temperature (65–68° F.)		1	2	2	1							
Artificial respiration				1								
PROBLEMS IN CONNECTION WITH CLOTHING												
Changing clothing to meet changes in temperature	2		1	2	1							
Removing rubbers and wet clothing	3		2	1	1							
Choosing clothing that is simple, comfortable, appropriate			1		1							
Care of clothing	2		1	2	1							
PROBLEMS CONCERNING THE HOME AND FAMILY												
How did the family develop and what is the present tendency in family life?												
Evolution of the home												
How to build and furnish a healthful and beautiful home												
What are the housing conditions in New York City?			2	1		2						
PROBLEMS CONCERNING INDUSTRIAL HYGIENE												
What constitutes sanitary working conditions?												
How can working conditions be improved?												
What has been done (historical)?												
Child labor												

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionaires Answered by 96 Adult Professional Women
50% did not know why breathing was necessary. 66% thought the best temperature for a room is over 72° F. 75% did not know that the temperature is more important in ordinary ventilation than the amount of oxygen.	

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficieney as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Problems in Care of Teeth												
What is the best practice in cleaning teeth?	2	2	1	3	1		Caries					
How to prevent decay of teeth	1	1	1	1	1		Ex. 6%	7	5	7	2	1
							Tartar					
							Ex. 0	1	4	9	8	14
							Stain					
							Ex. 10%	9	9	2	8	6
							Q. Forgets to clean teeth at night.					
							25%	11	15	15	22	9
Problems in Relation to Normal Weight							Ex. Per cent of pupils more than 5% underweight.					
What causes underweight? Is it important?	1			3	2	2	16%	20	20	25	26	33
How can we find out if one is seriously underweight?				4	2	2	Ex. Per cent more than 10% underweight.					
How can one gain if underweight?			1	3	2	2	3%	7	7	14	13	14
What to do if more than 15% overweight			1	2	2	2	Ex. Per cent more than 15% overweight.					
							1%	7	5	6	10	11
Problems in Regard to Posture							Lardosis					
Maintaining a good standing, sitting, and walking posture	3	1	1	4	2	3	Ex. 17%	14	1	14	0	0
How to prevent poor posture	1	1		3	2	3	Prominent or slightly prominent abdomen.					
How to correct poor posture	1	1		3	2	3	Ex. 77%	66	70	44	27	24
							Scapula prominent or slightly prominent.					
							Ex. 51%	33	34	31	19	24
							Shoulders round.					
							Ex. 33%	20	27	25	14	10
							Shoulders low, left.					
							Ex. 20%	27	25	23	15	11
							Shoulders low, right.					
							18%	17	22	11	10	10
							Curves					
							Ex. 14%	20	23	15	6	10
							Q. Poor standing posture. Children's judgment.					
							0	9	3	15	7	7
							Q. Poor sitting posture.					
							1	11	14	32	18	15

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionaires Answered by 96 Adult Professional Women
43% did not mark "before going to bed" as the most important time to clean the teeth. 80% did not recognize that brushing the teeth every day is the best way to form this habit.	7% reported pus-poisoning from teeth.
25% did not recognize the relation of defects to underweight.	
66% did not recognize the relation between good food and rest and posture.	

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Problems in Mental Hygiene							Ex. Nervous condition, fair.					
							24%	17	17	14	16	16
How to acquire the habits of happiness, confidence, independent thinking, accuracy, thoroughness, wholehearted attention to work in hand, perseverance	1		2		1	3	Ex. Nervous condition, poor.					
							8	3	4	1	1	3
Avoiding worry, unnecessary fear	1	2	2		1	3						
Playing fair in games	2		3	4	1	3						
Learning to control the emotions	1		2		1	3						
Relaxing mentally			1		1	3						
How habits are formed			1		1	3						
How to learn—laws of learning	1		1		1	3						
Planning the day so as to have alternate times of mental and physical activity	1		1		1	3						
Problems in Care of the Eyes							Ex. Vision less than 20/20.					
							56%	24	15	24	17	19
Always sitting in a good position for reading, sewing, etc.	2		3	4	3	3						
Having the right amount of light			3	1	3	3	Congestion of eyelid.					
Always having the right kind of light	1		2	1	3	3	Ex. 20%	20	16	8	14	17
How to avoid eyestrain	1		2	2	3	3						
How to avoid eye infection	1		2	1	3	3	Granulation of eyelids.					
							Ex. 28%	23	22	19	12	6
							Astigmatism					
							Ex. 34%	38	55	44	46	35
Problem from Viewpoint of Physiology							Lung capacity—per cent below average range.					
							Ex. 6%	4	4	2	4	0
How to have strong well formed bones				1								
How to have good muscles				1			Strength of right forearm—per cent below average.					
How to have good blood				1								
How to have good circulation				1			Ex. 0	0	4	5	9	16
How to have a sound heart				1								
							Left forearm.					
							Ex. 0	0	11	10	21	32
Problems of Elimination of Waste							Q. No daily bowel movement.					
							5%	0	7	4	4	0
How to prevent constipation			2		1	3						
How to maintain healthy condition of kidneys			2		1	3						

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionaires Answered by 96 Adult Professional Women
44% said "children should never work any harder than they have to."	12% reported that they were not usually happy and cheerful. 15%—that they did not give entire attention to the work in hand. 18% day dream to the extent of neglecting actual life problems. 28%—not generally confident of their ability to do the work chosen. 31%—do not think impersonally on most questions. 34%—worry about the past and future.
38% said a book should be held 5–8 inches from the eyes.	Per cent suffering from eye trouble: Every day—13%. Once a week—19%. Two or three times a year—30%.
	Per cent having headaches once a week—11%. Two or three times a year—27%. Frequent backache—24%.
44% did not recognize the importance of regularity. 62% did not know the value of fruits and vegetables in preventing constipation. 60% did not recognize the value of exercises in preventing constipation.	Per cent suffering from constipation two or three times a year or oftener—45%. From appendicitis—7%.

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
PROBLEMS IN CONNECTION WITH SLEEP AND REST							Less than the average number of hours sleep.					
Getting sufficient sleep each day ..	3	1	3	4	1		12 hrs.	11 hrs.	11 hrs.	10 hrs.	10 hrs.	9 hrs.
Securing conditions conducive to sound sleep		1	1		1		Q. 13%	2%	5%	2%	9%	7%
Securing sufficient rest and relaxation during the day	1		1	1	1		Studies after the evening meal.					
							Q. 0	2	21	17	22	16
PROBLEMS IN SAFETY												
How to avoid accidents from traffic	3	2	3	3	1	3	[It would have been interesting here to have a list of accidents which had happened to children in the school—and statistics of accidents happening to children in New York City.]					
How to avoid fires, burns	2	1	1	1	1	3						
How to avoid falls, ...	2	1	1	1	1	3						
Often due to carelessly leaving things about.												
Climbing in dangerous places.												
How to avoid accidents due to electricity	1	1	1	2	1	3						
How to make games safe to play ..	2	1	2	3	1	3						
How to avoid accidents in swimming, rowing, etc.		1		1	1	3						
How to prevent taking poison by mistake		1		1	1	3						
Care in covering sharp pointed objects	2	1	1	2	1	3						
PROBLEMS OF AROUSING CHILD'S DESIRE FOR GOOD HEALTH		1	1	2								
Responsibility of individual for good health of self and others	1		2	1								
Values of good health		1	2	1								
Comparison of own physical condition with standards			2	1								
How good health is attained		1	2	1								
Certain people of importance who testify to the need of good health habits for success			1									

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
PROBLEMS IN CONNECTION WITH ALCOHOLIC BEVERAGES												
Bad effects of use of alcoholic beverages												
Laws regarding use of alcoholic beverages and proper attitude toward laws												
PROBLEMS IN CONNECTION WITH TOBACCO, DRUGS, PATENT MEDICINES												
Why we should not use tobacco				1								
How to avoid the drug habit												
SOCIAL HEALTH PROBLEMS												
How the child can coöperate with the school in protecting the health of the children	1		1	2		1						
How we can work for the health of others through voluntary organizations				1								
How we can coöperate with public health agencies			1	2								
How public health agencies can help us				1								
PROBLEMS IN CARING FOR HAIR												
How to care for hair			1									
Washing of the hair			1									
How to prevent baldness and keep scalp healthy												
How to prevent pediculosis												
PROBLEMS IN EDUCATION FOR PARENTHOOD												
How to care for infants												
Sex education												
PROBLEMS IN FIRST AID						2						
How to treat cuts	1		1	1	3							
Bandaging				1	3							
What to do if a person faints					3							
Water accidents					3							
Burns, scalds					3							
Bruises				1	3							

PROBLEMS AND FINDINGS (*Continued*)

Possible Health Problems from Which to Choose Those Especially Important for the Different Grades of Horace Mann School	No. of Teachers Who Thought Problem Important and Appropriate for Their Grades						Q. Per Cent of Children Showing a Deficiency in Health Habits as Indicated by Questionaire. Ex. Per Cent of Children Showing a Health Deficiency as Indicated by Results of Physical and Medical Examinations.					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
PROBLEMS IN FIRST AID (*Continued*)												
Hemorrhage					3							
Poisons					3							
Sprains					3							
Fractures and broken bones					3							
Poison ivy				3	3							
Nose bleed				3	3							
Clothing on fire	1				3							
Choking					3							
Insect bites and stings				1	3							
Other accidents					3							
PROBLEMS OF DEFECTS												
How to discover and prevent defects												
How to treat defects												
PROBLEMS IN CONNECTION WITH EXERCISE—SUNLIGHT							Q. Less than 2 hours of outdoor play.					
How to plan daily schedule so as to get out in the sun every clear day	1		2	3	1	1	2%	0	7%	6%	10%	14%
Getting sunshine in the home			1		1	1						
How to plan daily schedule so as to get at least two hours active play daily												
PROBLEMS IN CONNECTION WITH THE EARS							Ex. Acute middle ear.					
How to avoid injuring ear drums				2			10%	15%	12%	16%	14%	14%
Giving proper attention to good hearing				1			Ex. Drums punctured.					
							0	0	0	0	3%	0
PROBLEMS IN CONNECTION WITH THE FEET							Fallen arches.					
Choosing a good shoe							Ex. 23%	31	26	14	16	17
How to prevent fallen arches and other foot trouble							Pronation					
							Ex. 23%	17	22	21	27	32
							Walks on inner border.					
							Ex. 11%	13	11	18	13	0
							Weak feet.					
							Ex. 0	0	0	0	13	13

PROBLEMS AND FINDINGS (*Continued*)

Some Deficiencies in Health Knowledge Indicated by a Limited Number of Exercises from the Gates-Strang Health Knowledge Test Given to 40 Sixth Grade Girls	Health Deficiencies Indicated by Questionaires Answered by 96 Adult Professional Women
	Per cent having ear trouble two or three times a year—10%.
	Foot trouble: Two or three times a year or oftener—11%. Pain in arches—10%.

"Chooses crisp toast or hard rolls instead of soft bread or muffins whenever possible."

"Coarse whole grain breads help to keep the teeth clean."

"Never eats candy between meals."

"Among the ancient Egyptians sugar and sugar cane are not mentioned and apparently were unknown. Pyorrhea was not present and real dental caries were seen in only two teeth of the many jaws in the museum collection of mummies." (In connection with the study of sugar and Egypt.)

"Sugar in too large quantities is probably one cause of tooth decay."

"Calcium (or lime) is necessary in building good teeth and bones."

In Grade V—

"The best source of lime is milk."

"Vitamin C is necessary for healthy gums and teeth. Result of Vitamin C deficiency is seen in the jaws of guinea pigs whose diet lacks this vitamin.

"Advantages of clean sound teeth and healthy gums."

Similarly other problems were worked out and submitted to the teachers of each grade for their judgment of the appropriateness of the details to the capacity and interest of children in their grades. Their recommendations at the end of the term were incorporated in the course of study.

The third step was to find school situations in which this subject matter might most naturally be taught. This sounds formidably formal until we remember that by "subject matter" is meant every aspect of healthful living, and not health knowledge alone. Accordingly, for each grade, providing an environment in which the children can live healthily in school is the first consideration. This included details of lighting, ventilation, seating, mental and emotional atmosphere, safety, daily inspection, rules regarding communicable diseases, etc. But three-fourths or more of the health activities of the child are carried on outside of school. As a guide for the activities of the entire day, a daily schedule was worked out for each grade. This daily schedule is a composite of the daily schedules of the most healthy children in each grade and what we know theoretically concerning desirable daily schedules. This will, of course, vary for different children but may serve as a guide to parents and to teachers in helping the child to spend the day wisely and well. Many problems must be taken up with individual children. There still remained the task of providing classroom instruction in the most frequently found problems which would build the right kind of public opinion regarding healthful living and give the child the knowledge which would enable

him to choose the healthful thing in the situations with which he is confronted, and give him a motive for doing it. This could probably be best done through actual situations which arise in the classroom. Some such situations were suggested in the outline given to each teacher in the fall of 1924. The teachers were asked to note during the year other situations in which health education might be naturally given. These were added to the course of study. Although different situations will arise each year it is hoped that those which have been found by one teacher to be successful will prove suggestive and stimulating to other teachers.

In the first three grades, no special time is set aside for health teaching. It is incorporated in the program as a whole. In the fourth grade a period is set aside which may be used or not as the teacher feels the need for it to summarize and emphasize and focus attention on some points which have been touched on in other parts of the school program. In the fifth grade also a period is set aside for special health problems that do not correlate legitimately with the other school subjects. This is the last opportunity in the present school program for giving instruction to the boys as well as to the girls, because in the sixth grade the boys have science at the time the girls have hygiene. The science period, however, may involve health teaching, and the health period scientific as well as social, personal, and intellectual phases of health.

The course of study described here is tentative.[1] It should change and grow to meet new needs as they appear and to incorporate new knowledge as advances in this field are made. It is also a local course of study and therefore not entirely applicable to other groups having different mental, social and economic characteristics. But the method of making it should be applicable to many situations.

[1] This course of study may be obtained in pamphlet form from the Bureau of Publications, Teachers College, New York City.

NEW STUDIES IN EDUCATION

FORECASTING SCHOOL POPULATION*

The development of research service has made it possible for those responsible for the administration of the schools to anticipate future needs and to work out educational programs in advance in a systematic way. Rough estimates of requirements made on the basis of individual judgment or the casual review of current conditions are rapidly giving way to proposals based on facts. To intelligently plan an educational program and to accurately estimate in advance the funds necessary to support such a program requires a knowledge of the composition, size, and rate of growth of the population to be served by the schools. The many complex and dissimilar elements that affect population growth and their varied fluctuations seem at first not to be amenable to any scientific analysis. Predicting future population is necessarily subject to the possibilities of error. Unforeseen events will always occur. Yet the effect of these unprecedented factors on the course of growth of the population in most communities is not such but that the modifications from normal growth can be measured with results determined sufficiently reliable for ordinary statistical purposes.

The various important methods that have been used to predict population growth are set forth in this study. The plans used to prognosticate growth in population may be divided into two general classes, those which are based upon an analysis of the elements affecting growth and those which are based on mathematical methods. The study is divided into two parts, the first part having to do with a detailed outline of these methods and an evaluation in terms of their application to school situations. The second part of the study is devoted to the illustrative use of the more important mathematical techniques.

It has only been in recent years that school officials have attempted to set forth their educational plans by relating them to a factual presentation of school population change. The scientific planning of an educational program advanced with the survey movement. Out of

* Engelhardt, Fred. *Forecasting School Population.* Teachers College Contribution to Education, No. 171.

this movement, and especially with the development of school building planning, came various methods and attempts to relate school building and site programs to change in total and school population. In the earlier surveys one finds the demand for more adequate and accurate statistical data. In these same surveys population growth was anticipated in general terms and opinions on the possibilities of future growth were expressed on the basis of local observations and individual judgment.

The procedure followed in the earlier surveys was rapidly replaced by intensive studies of local population trends and growth. These analyses were made for wards, for school districts, and for the educational administrative unit. The Bell Telephone forecasts of the total population in the cities surveyed were related to the school population, and predictions were made as to the number of children in each of these districts and in each organization unit for whom school accommodations should be provided. The dot map technique was developed and used extensively in these studies.

Practically all large public enterprises have found that a technique to predict future service demands is essential to the development of the enterprise. In a large number of cases these demands vary with population change. The same degree of accuracy is not required in forcasting population for all these enterprises. This study points how education has profited by the work done in these other fields, and especially through the work done by the Bell Telephone System. This company now anticipates through its researches in population growth the future telephone service needs, and the budget is planned three years in advance on the basis of the requirements thus anticipated.

As has already been stated, the forecasts of the Bell System have been used in a number of public school surveys, and the findings of these surveys have been likewise used by the Bell System. The ideal way to anticipate population change would be to analyze out the influences that affect population, to determine what these effects are, how they are related and how they are brought about. The principles formulated from such an analysis could then be applied to predict future conditions. This method formulates the basis of the Bell System technique. Modifications of the Bell technique are applicable to public schools and the author has outlined a technique that can be readily applied to any school system. This modified technique has been applied in several recent school surveys.[1]

When a problem can be expressed in measured terms or mathe-

matically it can be more intelligently analyzed and more rapidly solved. Various attempts have been made to exploit mathematically population statistics. The more important attempts have been outlined in this study. The application of a mathematical technique to city schools is illustrated, and the results are compared with the findings of the surveys in these cities as well as the findings of the Bell System.

The author points out that any mathematical method must be used with discretion. There is the danger of thinking that a solution because it is mathematical is correct. Mathematical solutions can be applied only when population data are available for a long period of time. Population accrued or lost by transfer of land areas cannot be accounted for in any mathematical analysis. This is also true in changes that arise in census data due to modifications in methods of taking the census. A mathematical technique can only be applied to large population groups. The mathematical analysis has certain distinct advantages, for when applicable it gives a picture of the whole course of growth showing clearly trends and tendencies.

THE RELATION BETWEEN GRADE SCHOOL RECORD AND HIGH SCHOOL ACHIEVEMENT

Can academic success be predicated? If so, how? To what extent can previous scholastic success be used as a basis for predication?

The earliest attempts to answer these questions some fifteen years ago sought to find a quantitative measure of the relation between high school record and college record, or between grade school record and high school record. All of these early investigators employed the method of simple correlations and were interested primarily in the *average standing* as represented by teachers' marks in the two types of schools being compared. Then a decade ago appeared Kelley's *Educational Guidance,* which brought to the attention of students of the problem the great possibilities of multiple correlations, a technique which made it possible for the first time to combine the separate elements of a pupil's record according to the relative importance of each as a factor in prognosis. At about the same time, however, certain studies appeared tending to bring teachers' marks somewhat into disrepute. These studies, together with the rapid development of standard tests, have served to divert the current of investigation

[1] Robbinsdale Survey, University of Minnesota Library, Minneapolis, Minn.; Superior Survey, Board of Education, Superior, Wisconsin.

away from the ordinary record of the pupils and into the field of special measurement. But the correlations between standard test scores and academic achievement have, in general, remained disappointingly low, and so the major problem of prognosis still waits for a fully adequate solution.

This recent study, *The Relation Between Grade School Record and High School Achievement,*[1] returns to the problem of determining the relation between the ordinary facts of the pupil's grade school record, as they appear on the individual record card at the time of completing grade 8, and his later achievement in high school. Answers to two major questions have been sought: First, what is the relation between a pupil's grade school record and his subsequent academic record in the high school? Second, what is the relation between a pupil's grade school record and his length of stay in the high school?

RELATION BETWEEN GRADE SCHOOL RECORD AND HIGH SCHOOL SUCCESS

The correlations were found between each of the factors of the grade school record and average standing in the first year of high school, and standing in the individual subjects, English, Latin, and mathematics. Afterward the combinations of those factors that yield the highest correlations with these measures of first year high school success were determined. In the same way the combination of factors that would best predict the average standing of pupils who remain two or more years in high school, and the combination that would best predict average English standing of pupils who remain two or more years in high school, were obtained. These results may be summarized as follows:

1. The factors of the grade school record vary widely in their relation to high school success. The correlations with average standing in the first year of high school range from — .36 to .56; with English the range is from — .38 to .54; with Latin the range is from — .25 to .54; and with mathematics the range is from — .26 to .42. The median correlations are, respectively, .33, .39, .24 and .15.
2. The factors which were most significant in predicting success in the first year of high school were as follows: Age at end of grade 8; total number of semesters required to complete grade

[1] Ross, C. C. *The Relation Between Grade School Record and High School Achievement, A Study of the Diagnostic Value of Individual Record Cards.* Teachers College Contributions to Education, No. 166.

school; average record in English, grades 4–6; average record in English, grades 7–8; average record in arithmetic, grades 7–8; average record in the special subjects, physical training and manual training, grades 7–8; average record in history, grades 5–6; average record in history, grades 7–8; average record in effort, grades 7–8; average days present, grades 2–3; and average days present, grades 4–6. The relative weight of these factors varied with the different high school subjects.

3. The multiple equations were first obtained from the data of the year 1917 in one city. To test the stability of these equations they were afterwards applied to the similar data for the year preceding, and the two years following that date, in the same situation, and then to the data of a wholly different situation five years later. The resulting correlations are given below.

Grade School Total Score to Predict	Correlation with 1st yr. H. S.					Correlation with H. S. Average (Two or more years)			
	New Rochelle, N. Y.				Des Moines Iowa				
	1916	1917	1918	1919	1922	1916	1917	1918	1919
General Average.....	.68	.67	.56	.65	.69	.60	.64	.57	.66
English.....	.60	.67	.67	.60	.61	.62	.67	.52	.60
Latin.....	.58	.73	.57	.64	.61	..		..	..
Mathematics.....	.42	.51	.43	.51	.51	..	..	..	..

4. In general, the same factors that predict success in the first year of high school predict success during the entire high school period, and to substantially the same extent.

RELATION BETWEEN GRADE SCHOOL RECORD AND PERSISTENCE IN HIGH SCHOOL

The study attempts to discover in what respects and to what extent the grade school records of pupils who graduate from high school differ from those of pupils who remain in high school longer than one year but do not graduate, from those of pupils who remain one year or less in high school, and from those of pupils who complete grade 8 but do not enter high school at all.

The study also seeks to find to what extent a pupil's length of stay

in high school can be predicted from his grade school record. The results may be summarized as follows:

1. The pupils who graduate from high school differ from the other groups in the following respects: They are younger; they have progressed through the grades more rapidly; and they have a better grade school record in spelling, reading, arithmetic, English, geography, history, fine arts, and effort.
2. The most significant single factor in relation to persistence in high school is the pupil's age at completing grade 8, which correlates with semesters spent in high school for the groups completing grade 8 in the years 1916, 1917, 1918, and 1919 to the extent of .61, .57, .50 and .51, respectively.
3. A total score made up of age at completing grade 8, average days present, grades 4–6; average English mark, grades 7–8, and average mark in effort, grades 7–8, correlates with semesters spent in high school as follows: 1916 group, .63; 1917 group, .63; 1918 group, .52; 1919 group, .54.

CONCLUSIONS

1. The correlations between the grade school record and high school achievement are sufficiently high to be significant, being in most cases higher than the corresponding correlations between standard test scores and high school achievement.
2. The correlations between the grade school record and high school achievement are sufficiently stable to be reliable, having established their claim to stability by showing remarkable consistency for four years in one city and for one year in another city.
3. The correlations between the grade school record and persistence in high school are fairly high and relatively consistent from year to year.
4. The pupil's individual grade school record card should provide a definite place for entering the average rating on the significant factors by grade-groups, and for the total rating for each of the high school subjects for which a prediction may be sought. These total ratings should become an integral part of the pupil's credentials when he is promoted to high school, and should be made available for vocational and educational counsellors, grade school principals, high school principals, and all

administrative officials whose duty it may be to provide for the subsequent education of the pupil.

5. The best basis for predicting high school achievement would seem to be a combination of the following: (1) intelligence test ratings, general and specific, which would afford a measure of the pupil's native endowment; (2) ratings on standard achievement tests, which would afford objective evidence as to the pupil's prerequisite academic preparation, and which would make possible ready comparisons between pupils of different teachers and different schools; (3) the teachers' ratings in the grade school, which afford a measure of the pupil's attitude and habits of character, such as industry, persistence, and conscientiousness, already acquired, factors which have been reflected in the grade school record and for which no adequate objective measures are at present available, and which will always be very important factors in determining an individual's success in school and out of school.

COLLEGE NEWS

EDUCATIONAL ADMINISTRATION

The members of the staff of the department of educational administration entertained students and their wives and families at a picnic which was held on Saturday afternoon, October 3. The early part of the afternoon was spent in play on the grounds of the Horace Mann School for Boys and later in the afternoon a picnic supper was served at the home of Dr. and Mrs. George D. Strayer.

Students in the second major course for superintendents of schools are continuing the work on the Tampa, Florida, survey. A group of students accompanied by Professors George D. Strayer and J. R. McGaughy spent the week of October 19 in Tampa studying problems of organization and administration and of finance.

The students in the first major course for superintendents of schools are participating in a survey of the schools of Hammonton, New Jersey, as their field work for the first semester.

Professor Paul Mort advised with the executives of the American Telephone and Telegraph Company during September concerning the development of their course in health education which is to be offered to employees throughout the United States. Problems of administration and supervision of this work were discussed with representatives of the organization from all parts of the United States attending a conference which was held in New York September 14-26.

At the request of the School Committee of the city of Providence, Rhode Island, Professor Strayer has submitted to them suggestions for rules to control their procedure. The new School Committee, created as a result of the survey, goes into office the first of December.

Dr. McGaughy has accepted reappointment for a third year of service as a member of the Committee on Nomenclature of the National Education Association.

Dr. Carter Alexander has been serving on a committee of the American Statistical Association to make suggestions for the statistical sections of the proposed encyclopedia of the social sciences. This project is under consideration by the larger national associations in the various social sciences.

The report of the survey of Cranford, New Jersey, has been printed and copies have been distributed to those students who participated in this undertaking.

Professor Strayer reports an interesting meeting of the Legislative Commission of the National Education Association held in Washington on October 16 and 17. A conference was held under his leadership of representatives of more than a score of lay organizations who are coöperating with the N. E. A.'s commission in promoting the bill to establish a department of education. It seems probable that some action will be taken at the coming session of Congress. The proposal for the bill in its present form provides for a department of education which shall act as a fact-finding and fact-distributing agency comparable in its functioning to the departments of agriculture, commerce, and labor. It will be remembered that the Committee on

the Reorganization of Executive Departments proposed the establishment of a department of education and relief. This proposal placed the Veterans Bureau and the Health Service in the department of education. If either a straight department of education or the department of education and relief is created significant progress will have been made for the development of education in the nation.

ADVISERS OF WOMEN

The courses for advisers of women were given during the Summer Session by Miss Mina Kerr, dean-elect of Florida State College for Women, Miss Florence Jackson of Wellesley College, and Dr. Margaret M. Alltucker, of the Research Bureau of the National Education Association. Under their able leadership the Advisers Club of over a hundred members enjoyed four very interesting meetings. The officers of the club were: President, Dr. Bertha A. Merrill; vice-president, Miss Lillie Doerflinger; secretary, Miss Ruth K. Cleveland; treasurer, Miss Felita M. Smith.

Miss Minnie Smith, who after a year of travel in Europe completed the work for her Master's degree in June, 1925, has returned to her former position as dean of girls at Castilleja School, Palo Alto, California.

Several of the members of last year's major course are combining some teaching with the duties of adviser. Mrs. Edith M. Jones is teaching home economics and acting as dean of girls at Moraine Park School, Dayton, Ohio. Miss Louise Jerrell is instructor in English and dean of girls in a new junior high school in Des Moines, Iowa. Mrs. Evelyn Adams is teaching sociology and filling the position of educational adviser in the Garland School of Homemaking, Boston, Mass.

Mrs. Marion Simonson ('24), director of health in New Trier High School, Kenilworth, Illinois, attended the meeting of the World's Federation of Education Associations at Edinburgh this summer. Others who traveled in Europe this summer are Mrs. Anne Fertig, dean of women at State College, Pullman, Washington; Miss Mary T. Scudder, who is continuing her study here this year, and Mrs. Lillian Ringle, dean of women at Billings Polytechnic Institute, Billings, Montana.

Four former members of the course for deans of women have been appointed as advisers in the state of Michigan. Miss Ruth Haase ('25) is dean of women at Albion College; Mrs. Miriam Rowe ('25), dean of women at Hillsdale College; Miss Ruby Howe ('25), social director of Betsy Barbour House, University of Michigan; and Mrs. Louise Hastings ('23), social director of Helen Newberry Hall at the University of Michigan. Mrs. Hastings succeeds Miss Helen Bishop, who has become dean of women at the University of Wyoming, Laramie, Wyoming.

Miss Ruby Terrill, a member of the major course in the Summer Session of 1924, has been elected dean of women at the University of Texas.

The members of the major course this year were entertained by Professor Sarah M. Sturtevant Tuesday evening, October 6. An informal "Who's Who" gave the students an opportunity to get acquainted. Plans were made for the organization of the 1925-26 Advisers Club and a temporary chairman was elected.

BUREAU OF PUBLICATIONS

The *Journal of Educational Method*, published heretofore by the World Book Company, will be published by the Bureau of Publications of Teachers College

beginning with the September number. Professor James F. Hosic, of Teachers College, will continue to edit *The Journal.*

The Bureau has also arranged with the Lincoln School of Teachers College to publish and distribute all future Lincoln School monographs and reports.

The following new Lincoln School publications have recently appeared: *Curriculum Studies in the Second Grade,* by Katherine L. Keelor; *Illustrations of English Work in the Junior High School,* by Caroline I. Zachry; and *Twenty Songs for Children,* by Earl Victor Prahl, illustrated by Milton R. Newman.

The Historic Costume Plates by Miss Belle Northrup, instructor in costume design, Teachers College, have been published by the Bureau. They are thirty in number. Fourteen of the plates are historical—from Egyptian and Mediæval times to the twentieth century. The remainder depict national or peasant dress of the East and West.

EDUCATIONAL SOCIOLOGY AND VOCATIONAL EDUCATION

The Educational Sociology Club renewed its activities with a "get-together" on Friday night, October 2. This is the youngest of the departmental clubs, having been started in March of this year. Last spring it held three meetings which were addressed by prominent social workers from New York City, took a trip to Dobbs Ferry to see the rehabilitation work of the Children's Village, and held a luncheon with Dr. David Snedden and Dr. Daniel H. Kulp as guests of honor. A similar but enlarged program is being worked out for the present academic year. The aim is to provide contacts with leaders in the fields of applied sociology and to visit institutions of particular significance for students of educational sociology. Dr. Kulp is the club's adviser.

The offices of Professors Snedden, Kulp and Shiels have been transferred to the Lowell Annex. It is expected that the main ground floor room of the annex will be developed as a sociology and civics laboratory and seminar room.

School and Society published in its numbers for August 29, September 5, and September 12, a discussion by Professor Snedden under the title, "Planning Curriculum Research."

Dr. Kulp assisted Dr. H. O. Rugg in conducting lectures and discussions during Education Week at 'Sconset Summer School, Nantucket, Mass.

ELEMENTARY EDUCATION

Teachers, principals, supervisors and others interested in problems pertaining to supervision had the opportunity during the past Summer Session at Teachers College to attend a meeting devoted entirely to the subject of supervision. Miss Mary Mugan, assistant superintendent of schools, Fall River, Massachusetts, who presided, referred to the need for supervisors to know their coworkers, not only in their immediate community but in the state and nation as well, in order that a high professional standard for supervision may be maintained.

Dr. Milo B. Hillegas, Dr. James F. Hosic, and Dr. Thomas H. Briggs spoke upon the function of the supervisor, the supervisory staff and the coördination of the supervisory agencies in elementary and secondary schools.

An important outcome of this general meeting was the organization of a committee to undertake the preparation of a roster for each state containing the names of all engaged in supervisory work. The National Conference on Educational Method has offered to as-

sist the committee in carrying on this study. Announcements will be made from time to time through such channels as the *Journal of Educational Method* and the *Teachers College Record.* A report will be rendered also at the annual meeting of the National Conference on Educational Method to be held in Washington, D. C., February 23 and 25, 1926, in conjunction with the meeting of the Department of Superintendence.

The work of preparing this roster will be greatly facilitated if all supervisors who wish to be included in this list will send name, position and address to Miss Mabel E. Simpson, President, National Conference on Educational Method, in care of *Journal of Educational Method,* Teachers College, Columbia University.

Professor Lois C. Mossman spent September 1 to 5 inclusive at Des Moines, Iowa, lecturing before the General Session of the Institute for City Teachers of Des Moines and the Pope County Teachers. Miss Laura Zirbes, of the Lincoln School, was also a speaker at this institute. On October 16 and 17 Professor Mossman spoke before the meeting of the South Piedmont District of the North Carolina State Teachers Association.

Mr. Edwin H. Reeder was one of the lecturers at the Lorain County Teachers Institute held at Elyria, Ohio, on September 1 and 2.

Early in September Professor James F. Hosic gave several talks on educational methods to the public school teachers of Plattsburgh, New York.

Professor Annie F. Moore addressed the teachers of the kindergarten-primary grades of San Francisco public schools on August 26 and visited schools the next day accompanied by Miss Julia L. Hahn, supervisor of those grades in the city system. Professor Moore reports having seen work of a high order along modern lines. On October 26 Professor Moore spoke at the Connecticut State Teachers Association, addressing the primary sections at Norwich and East Hartford on "Factors in a Genuine Social Organization of Primary Education."

Professor Milo B. Hillegas was one of the speakers at the Superintendents' Meeting held at Albany, New York, on October 14. His subject was "Curriculum Making for the Elementary School."

Professor Frederick G. Bonser returned the latter part of August from his trip around the world. He was one of the members of the group who were engaged in the survey of the schools of the Philippine Islands under the auspices of the International Institute of Teachers College. When his work in the Philippines was completed the latter part of April, he and Mrs. Bonser went to China and from there to Egypt. They were joined in Egypt by their daughter, Miss Virginia Bonser, and Miss Bentley of the Social Motive School. From this point their trip included visits to Palestine and many points in Europe. Those who heard Professor Bonser discuss the Palestine of to-day at the chapel meeting of Wednesday, October 7, were convinced that his trip was a most interesting experience.

At the invitation of the director of the summer session, Dr. Zebulon Judd, Professor William A. McCall lectured at the Alabama Polytechnic Institue during the month of June. While in Alabama he inspected the progressive rural schools of Montgomery County, addressed the Tuskegee Institute Summer School, and gave special lectures at other places.

Miss Lelah Mae Crabbs, who recently received the Ph.D. degree, has resigned her position of lecturer in elementary

education at Teachers College and staff associate in the American Child Health Association to accept a position on the staff of the Merrill-Palmer School in Detroit. She goes to take the place of Dr. Helen T. Woolley who comes to Teachers College as director of the Institute of Child Welfare.

Mr. Vernan A. Jones has resigned his position as director of the Bureau of Educational Research of the Public Schools of Richmond, Virginia, to accept a position as associate in elementary education at Teachers College. Mr. Jones will be associated with Professor McCall in giving the courses in measurements, experimentation and statistical methods.

EDUCATIONAL PSYCHOLOGY

Professor Arthur I. Gates, with the assistance of Miss Helen Thompson, will conduct investigations of learning to read, write and spell by the deaf during the present year. The purpose of this investigation is to develop a better curriculum for the teaching of deaf children to read. This study will be carried out in the Institute for Improvement and Instruction of Deaf Mutes, at 68th Street and Lexington Avenue, with the coöperation of the officers of that institution.

A textbook for use in introductory courses in psychology, entitled *Elementary Psychology,* by Professor Gates, came from the press of the Macmillan Company in September.

Professor E. L. Thorndike has another book just off the press, *Junior High School Mathematics.* It is published by Rand, McNally & Co.

HORACE MANN SCHOOL

Mr. Henry C. Pearson, principal of the Horace Mann School, took an extended trip through the West this summer, stopping at Greeley, Colorado, to give a one week's course in connection with the summer session of the State Teachers College.

Among new members of the Horace Mann School faculty for the coming year are:

Mr. W. Linwood Chase (Sixth Grade), formerly grade teacher in Old Town and Orono, Maine; High School, Waltham, Massachusetts; superintendent of schools in Canton, Livermore, Maine and Boothbay Harbor District, Maine; Summer Session, Normal School, Farmington, Maine.

Miss Marion Knighton (High School Physical Education), Skidmore College, Saratoga Springs, New York.

Miss Jane Curtis Gifford (Fifth Grade), Harris Teachers College, St. Louis, and Washington School, New York City.

Mrs. Myrtle Middlebrook Bridge (High School Oral English), director and originator of the Little Theatre, Lincoln Center, Chicago.

Mr. Norval Church (High School Music), Nebraska Teachers College, Kearney; University of Wisconsin; Summer Session, Teachers College, New York.

Mrs. Sylvia Wilcox Church (Grammar Assistant), Jonesville and Madison, Wisconsin, City Schools; Wisconsin High School; Nebraska Teachers College, Kearney, Nebraska.

Miss Bernece Tompkins (Fourth Grade), grade teacher at Mt. Pleasant School, Marquette, Michigan; Summer Session, Teachers College, New York.

Miss Nellie M. Jacobs (Third Grade), grade teacher at Rock Falls, Riverside, Evanston and Glencoe, Illinois; Scarborough School, New York; Montclair State Normal School, New Jersey.

Miss Bonnie E. Mellinger (Primary

Assistant), primary critic, Spearfish, South Dakota, State Normal School; Elementary School, University of Chicago; Supervisor, San Jose, California; Summer Session, State Teachers College, University of Tennessee; Summer Session, University of Chicago.

Miss Margaret McGuire (Mathematics), Junior High School, Ladysmith, Wisconsin; High School, Elbow Lake, Minnesota; University of Minnesota High School.

Miss Pauline Schwartz (Social Studies), Training School, Iowa State Teachers College; Senior High School, Oklahoma.

Miss Mamie Lott (Primary Assistant), grade teacher in Consolidated Township School, Indiana and Richmond, Indiana; elementary critic, Training School, Indiana University.

Miss Dorothy Wright (Fine Arts), elementary grades, Piedmont Schools, California.

Miss Lena Sins (Fine Arts), supervisor of art, Okmulgee, Oklahoma; State Normal School, Indiana, Pennsylvania.

Miss Lillian Prentiss (Fine Arts), Texas State Teachers College, Denton, Texas.

Miss Katheryn Austin (High School Assistant).

Mr. Lynd Ward (Industrial Arts).

The pamphlet, *Training in Citizenship*, compiled by members of the Horace Mann staff, which was announced some time since, may now be procured through the Bureau of Publications, Teachers College.

HORACE MANN SCHOOL FOR BOYS

New members of the staff of the Horace Mann School for Boys include Mr. Alfred Baruth in the department of English; Mr. Enno Franzius in the department of modern languages; Mr. Arthur J. Latham in the department of science; and Miss Agnes Woods as assistant in the library.

Mr. Joseph H. Butterweck, working under a special appointment, is conducting an experiment in connection with the formation of study habits with a selected group of boys from the second year of high school.

The enrolment of the Boys School is unusually large, about thirty more boys having been accepted than in any previous year of the history of the school. The facilities of the school are taxed to the limit by this increased number, and it is clear that the school has reached the limit of its enrolment possibilities with the existing physical equipment.

Mr. Harold C. Clausen, of the English department, who is on leave of absence for the first half year, is spending the time in travel and study abroad. He is at present in Athens where he will remain for some time.

Practically every member of the graduating class of 1925 has entered college. It is constantly and increasingly evident that the Horace Mann School for Boys, whatever other professional service it may render, is regarded by its patrons as a school which prepares boys for college. The 1925 graduates are distributed among twelve colleges, the largest number going to any single institution being at Princeton.

HOUSEHOLD ARTS EDUCATION

Professor Anna M. Cooley, as president of the New York State Home Economics Association, spoke at a meeting of the Eastern Division held in Schenectady late in October.

Miss Clara E. Youngs, formerly of this staff, has accepted a position as supervisor of home economics in Ann Arbor, Michigan. Miss Bess Oglesby,

of Miami University, Oxford, Ohio, takes Miss Youngs' place.

Miss Cora M. Winchell spoke before the Home Economics Section of the Western Pennsylvania Educational Association at Pittsburgh on October 24. Her topic was "The Problem of Home Economics in the Junior High School."

Mrs. Kate Kinyon, supervisor of household arts in the Denver public schools, gave a course on the use of community surveys in curriculum construction during the Summer Session at Teachers College. Miss Clara Brown, of the University of Minnesota, who was also a member of the Summer School staff, gave a course in tests and measurements in household arts.

HOUSEHOLD ECONOMICS

During the past Summer Session several visiting lecturers spoke on various phases of household economics. In the field of Housing and Town Planning, Senator Vinck, of Brussels, spoke on the "Belgian Housing Movement"; Mrs. Olive M. Aldridge, of London, on the "English Housing Movement"; and John J. Murphy, secretary of the New York Committee on Housing, on "Housing in New York City." In the field of thrift, addresses were made by Miss Louise H. Kraus, home economist with the New York Charity Organization Society, who spoke on "Budgets in Family Case Work," and Miss Velma Phillips, home economist with the Abraham and Straus department store, Brooklyn. Miss Kraus and Miss Phillip are former students of the department of household economics.

KINDERGARTEN—LOWER-PRIMARY EDUCATION

Professor Patty S. Hill spoke before the following groups during October—the White Plains Community School, the Boston Day Nursery Association, the South-Eastern Branch of the New York State Teachers Association, the Northwestern Ohio State Teachers Association. She also participated in the three-day conference on Parental Education which was conducted by the Child Study Association of America October 26 to 28 at the Waldorf in New York City. During November Professor Hill will speak before the Central Ohio Teachers Association at Dayton, Ohio, on November 6; the Missouri State Teachers Association at St. Louis on November 12 and 13; the New York Day Nursery Association at New York on November 18; and the United Parents Association on November 19.

Miss Mary Reed will speak November 5 in Rochester before the Kindergarten Section of the New York State Teachers Association on "Problems in Kindergarten Education as Shown by Recent Kindergarten Surveys."

The new assistants in kindergarten education are Dr. Ruth Andrus, Miss Eleanor Troxell, Mrs. Gretchen Ostrander Murray. Each has had previous connection with the department.

A new book in the Series on Childhood Education, edited by Professor Hill and published by Scribner's Sons, is just out. It is called *Materials of the Kindergarten* and is by Miss Charlotte O. Garrison, principal of the Horace Mann Kindergarten.

MATHEMATICS

Professor David Eugene Smith spent six week of the summer in the library of the British Museum in a study of an important publication of the early period of printing and relating to the history of mathematics. He spent six weeks in Paris and accumulated further material for his historical collection.

His translation of Descartes's Geometry, the first work published on the analytical side, appeared during the month of August from the press of the Open Court Publishing Company.

Professor Clifford B. Upton is coöperating with a group of instructors in mathematics representing eleven different normal schools along the Atlantic coast in a study of the content of the teachers' course in arithmetic as given in the two-year normal school course.

On October 23 Professor Upton spoke before the Mathematics Section of the New York State Teachers Association on the topic, "Does Demonstrative Geometry Have Disciplinary Value?"

MUSIC EDUCATION

The Winter Session of 1925 opened with a number of important changes in the music education courses. Through the affiliation with the Institute of Musical Art and the enlarging of the regular Teachers College staff, a greater number of courses is offered than has heretofore been possible. Those listed in the Teachers College Announcement number twelve in theory of music, five in the appreciation and history of music, fifteen in the technique of musical performance, thirteen in general aspects of music education, four in the appreciation aspects of music education, seven in other special aspects of music education, and five in the instrumental aspects, school orchestras and bands.

At the regular staff meetings the roll of instructors for the regular school year includes the following: P. W. Dykema, M. L. Mohler, Charles W. Hughes, Alice M. Bivens, Emma H. Koller, N. L. Church, and Alice Thorn, of the Teachers College staff; Helen Latham, Gerald Reynolds, and Sylvia Church, instructors in music in the Horace Mann School; Satis M. Coleman and Charles M. Kinney of the music staff of the Lincoln School.

New arrangements for music in the Horace Mann School include an extension of music for the junior and senior high school students. In addition to chorus work for all students, each one is required to select one of three types of work: *a*. Appreciation and history. *b*. Theory and practice. *c*. Instrumental ensemble. In each of these groups there is an elementary and advanced group.

Mr. Church, in addition to his courses in instrumental instruction at Teachers College, has organized two orchestras in the Horace Mann School, and a band at the Horace Mann School for Boys. Expansion of the instrumental work at the Lincoln School is also contemplated.

On Friday, October 16, Professor Dykema participated in the discussion of music in the secondary schools held at the convocation of the University of the State of New York in Albany.

Miss Willian Beaumont has withdrawn from the music staff of the Horace Mann School to assume charge of the music at the Laurel School of Cleveland, Ohio. In this highly developed institution she will have the direction of the music from kindergarten to the college preparatory department, and thus will have an unusually wide range of experience.

NORMAL SCHOOL EDUCATION

Professor W. C. Bagley is spending this half year in Europe. At the present time he is visiting the normal schools in France and working on some manuscripts. During August he accompanied Professor W. F. Russell on his trip through Vienna, Budapest, Belgrade, Venice, Rome, Naples, and Turin, where conferences were held with the educa-

tional authorities of Austria, Hungary, and Jugo-Slavia. He was present at the ceremony in Belgrade when Dr. Russell was decorated with the order of St. Sava by King Alexander of Jugo-Slavia for distinguished services in the two international conferences at Edinburgh and Belgrade. Before returning to this country Professor Bagley expects to visit normal schools in Germany, Czecho-Slovakia, England, and Scotland.

At the invitation of the Teachers' Association of Cincinnati and the Elementary Principals' Association of that city, Professor E. S. Evenden recently appeared before these associations to discuss the problem of salary schedules and the specific problems involved in the revision of salary schedules for Cincinnati. A central committee has been organized by acting Superintendent Roberts to make a thorough study of this whole problem for Cincinnati. Professor Evenden also met with this committee when plans for the year's work were being discussed.

Professor A. R. Mead, of Ohio Wesleyan University, Delaware, Ohio, is serving as visiting professor in the normal school department during the present year. Professor Mead is particularly interested in the problems connected with the preparation of high school teachers and those relating to the management of practice schools. He expects to complete one or more book manuscripts during the year.

Professor Mead has been asked by the Mathematics Section of the New York State Teachers' Association to speak to that section at its next meeting on "The Use of Educational Measurements by the Classroom Teacher."

As a field study the normal school department has arranged for the survey of Winthrop College at Rock Hill, South Carolina. This study is undertaken at the invitation of President D. B. Johnson and will be made a problem for the major group in Normal School Education under the immediate direction of Professor Evenden and Professor Thomas Alexander.

Miss M. Margaret Stroh of Potsdam, New York, and Mr. John W. Carr, Jr., of Durham, North Carolina, have been appointed as part-time associates in normal school education for the coming year.

NURSING EDUCATION

Professor Elizabeth C. Burgess attended the meetings of the New York State League of Nursing Education in Albany, October 27, as president of that organization.

Professor Lillian A. Hudson represented the department at the meetings of the American Public Health Association held in St. Louis October 19 to 22.

Miss Maude B. Muse's new book on *Psychology for Nurses* will be out this month. It is published by Saunders and Co.

Professor M. A. Nutting has resigned her position as chairman of the Education Committee of the International Council of Nurses, and Professor Stewart has been appointed to succeed her. The committee, which is composed of representatives of forty countries, is gathering information regarding all the different national systems of nursing education, with the purpose of formulating a body of educational principles which will be of assistance to all countries desiring to improve their methods of nursing education.

Miss Nutting spent most of the summer in Massachusetts and Canada and is expecting to sail for Europe early in the winter.

An important movement in nursing

education is being launched this fall by the newly formed Joint Committee for the Grading of Nursing Schools. This committee is composed of representatives of practically all the larger national organizations concerned in nursing, medical, hospital, public health and educational work. Many of its members will be known to readers of the TEACHERS COLLEGE RECORD. They are as follows: Mrs. Chester Bolton, Cleveland; Miss Elizabeth Burgess, assistant professor of nursing education, Teachers College; Dr. S. P. Capon, chancellor, Buffalo University; Dr. Wm. Darrach, dean, College of Physicians and Surgeons, Columbia University; Dr. E. A. Fitzpatrick, dean, Graduate School, Marquette University, Milwaukee, Wisconsin; Miss Susan Frances, superintendent of nurses, Children's Hospital, Philadelphia, Pennsylvania; Dr. S. S. Goldwater, superintendent, Mount Sinai Hospital, New York; Miss Gertrude Hodgman, assistant professor of nursing, Yale School of nursing; Miss Laura Logan, dean, School of Nursing, Illinois Training School, Chicago, Illinois; Dr. M. McEachern, associate director, American College of Surgeons; Dr. Henry Suzzallo, president, Washington University, Seattle; Miss Katharine Tucker, director, Visiting Nurse Society, Philadelphia; Dr. C. E. A. Winslow, professor of public health, Yale University; Miss Helen Wood, director, University School of Nursing, Rochester, New York. Professor Stewart has been acting as secretary to the committee during the period of organization.

Miss Anna Wolf (A. M. 1910) has recently resigned from her position as dean of the School of Nursing, Pekin Union Medical College, China. She is back at the College for a year of work before taking charge of the new school of nursing connected with University Hospital, Chicago. Miss Wolf has been awarded the Isabel Hampton Robb Fellowship for 1925-26.

Miss Ethel Johns (1911-1912), until recently assistant professor and acting head of the School of Nursing and Health, University of British Columbia, Canada, has been appointed a special member of the field staff of the Rockefeller Foundation. She is at present engaged in a study of the status of colored women in nursing, with special reference to their education and future employment.

Miss Shirley Titus (B. S. 1925) has been appointed superintendent of the University School of Nursing, Ann Arbor, Michigan.

Mrs. Nellie Parks (B. S. 1921) has recently been appointed superintendent of nurses at the Willard Parker Hospital, New York City. Miss Dorothea Buckner (B. S. 1925) is assistant superintendent of nurses in the same institution.

Miss Marion Rottman (B. S. 1922) has returned to New York to take charge of the Schools of Nursing of Bellevue and Allied Hospitals.

Miss Pearle Kamerer (B. S. 1924-25) has been appointed director of public health nursing in Utica, New York, where plans are being made to work out an amalgamation of all the public health nursing services.

Miss Edna Rood (B. S. 1921) has been appointed director of health education on the staff of the Public Health Nursing Department at Peabody College, and will begin her new work in January.

Miss Cora Cripe (B. S. 1924) has also received an appointment at Peabody College and will assist Professor Abbie Roberts, director of the Public Health Nursing Course, giving special attention to the development of the rural nursing work.

Miss Gertrude Hodgman (A. M.

1924) has been appointed assistant professor at the Yale School of Nursing.

Miss Ellen Wang and Miss Clara Kno (students 1924-25) have returned to China as members of the staff of the Public Health Demonstration Station in the Metropolitan Police Department of Pekin.

Miss Beatrice Short (B. S. 1925) has resigned as director of school nursing in the Des Moines public schools to become secretary of school nursing on the staff of the National Organization for Public Health Nursing with headquarters in New York City.

Miss Ruth W. Hubbard (B. S. 1925) has joined the staff of the Yale School of Nursing as assistant in administration and teaching work in the pediatric department of the Yale Hospital Dispensary.

Miss Virginia Platt began work in September as full-time assistant in the Institute for Child Welfare Research, Teachers College.

Miss Bertha Pullen (B. S. 1924) is assisting Miss Lucetta Daniell, social welfare director, Teachers College.

Miss Emily I. Elliott, until recently in charge of the public health nursing course in Richmond, Va., has located in Poughkeepsie as director of the Dutchess County Health Association.

Miss Naomi Deutsch (B. S. 1924), until recently a member of the Henry Street Visiting Nursing Service staff in New York, has now gone to San Francisco to organize a Public Health Nursing Association, of which she is to be the director.

PHYSICAL EDUCATION

Professor Thomas D. Wood acted as chairman in the Health Education Conference held at the University of Chicago, June 22-26. This Conference was conducted under the auspices of the American Child Health Association and the Joint Committee on Health Problems in Education. The main sessions of the Conference were held in the Ida Noyes Memorial Hall at the University of Chicago, and on the invitation of the University.

Professor Wood gave addresses and conducted conferences on health education, July 21 and 22, at the State College at Ames, Iowa. On September 23, he attended the annual meeting of the American Dental Association at Louisville, Kentucky, where he was invited to address the Association on "The Co-operation of Teachers and Dentists in the Dental Hygiene of Children."

Mr. W. L. Hughes has accepted the directorship of physical education at De Pauw University. Mr. Hughes gave two courses during the past Summer Session at Teachers College.

Mr. L. B. Sharp, assistant in physical education, conducted *Life's* Fresh Air Camps at Patterstown and Branchville. There were a thousand children in all at the two camps.

Miss Helen N. Smith has resigned her position at the University of Cincinnati and is now serving as part-time instructor in this department.

Mr. Thomas Gibson has accepted an instructorship at George Peabody College. Mr. Thomas McDonough is also at Peabody as an assistant.

Copies of the summer issue of *The Discobolus,* published by the Student Alumni Physical Education Association, may be obtained from the secretary of the department. Membership in the Association, including subscription to the publication, is one dollar (ten cents additional for out-of-town checks).

On October 16 Dr. and Mrs. Thomas D. Wood held a reception for the students and staff of the department.

This gave everyone a delightful opportunity to get acquainted.

RELIGIOUS ORGANIZATIONS

In response to numerous requests for the plans and programs of the Teachers College Chapel exercises, the series as carried out are printed below.

Arranging chapel addresses in series has been found most successful. It satisfies the need we all feel for growth, for consecutive, cumulative experience. While it has been impossible to complete one series before starting another, speakers to deal with certain phases of the question being available for certain dates only, the interest has been carried through.

The themes have been chosen with some care, and the response indicates that they did lie in the field of student interest. The series "New Voices in Religion" was a further development of the series last year, "The Way of Life as It Has Been Conceived by the Great Religious Leaders of Different Races." Students requested a repetition of that series for the benefit of their friends who were new here. It occurred to me that it might be better not to remain too exclusively with the religious leaders of the past, but to discover what advance might be going on in our own generation and so to assist it. "Poetry, art, religion cannot be maintained by lingering in the past and futilely wishing to restore what the movement of events in science, industry, and politics has destroyed. . . . But while it is impossible to retain and recover by deliberate volition old sources of religion and art that have been discredited it is possible to expedite the development of the vital sources of religion and art that are yet to be. Not indeed by action directly aimed at their production, but by substituting faith in the active tendencies of the day for dread and dislike of them." So says Dewey, and I have reason to believe that we have accomplished a little along this line, if the various students, agnostic and fundamentalist, who have told me of their reactions, can be trusted.

Series I, Why Religion? comprised the following lectures: What Do We Mean by Religion? Dr. Coe; How Is God Manifested in the Modern World? Dr. Lyman; What Is the Function of Worship? Professor Johnston Ross; Can a Modern Student Pray? Mr. Ralph Bridgeman; What Specific Personal and Social Needs Are Met by Public Worship? Dr. Kulp; The Spiritual Implications of Coöperation, Rev. Allen Hunter.

Series II, New Voices in Religion: In English-speaking Countries, Dr. Franklin Baker; In German-speaking Countries, Dr. Arnold Woelfers of Switzerland; In France, Professor Spiers, department of French, Columbia University; In China, Mr. Frank Rawlinson, editor, *Chinese Recorder,* China; In Japan, Mr. Kagawa, social worker, Japan; In India, Mr. Cornelius; In Czecho-Slovakia, Professor Hebkova, Foreign Language Association; In Russia, Professor Brewster, department of literature, Columbia University; Among the Black Folk, Dr. W. E. B. DuBois.

Series III, Emancipation from Fear: Children's Fears, Mrs. Mary Cover Jones; The Common Morbid Fears of Adults, and Their Treatment, Dr. Lambert; Social Fears, Mr. H. N. Shenton; The Part of Recreation in Removing Fears, Dr. Thomas Wood; The Part of Religion in Removing Fears, Dr. Julius Bewer.

Series IV, Personal Religious Problems: The Nature of Prayer, Professor Horton, of Union Seminary; The Idea of God, Professor Horton; The Idea of Infinity and Immortality from the View-

point of a Mathematician, Dr. David E. Smith; Does Religion Imply Content? Dr. W. H. Kilpatrick (2 lectures).

Series V, Great Social Issues of Our Age: International Coöperation, Professor Shotwell; Better Race Relations, Dr. Robert Moton; Child Labor, Owen Lovejoy; Our Industrial System, Florence Kelly; Social Conditions and Modern Family Life, Dr. Ernest Groves.

JULIA GETHMAN, *Secretary*
Religious Organizations.

SECONDARY EDUCATION

During October Professor Thomas H. Briggs addressed the students of Bucknell University. He spoke before a gathering of educators during Pennsylvania School Men's Week at Lock Haven; at the Superintendents' Council in Albany; at a meeting of the Vermont State Teachers Association in Rutland; and at the New Jersey Educational Council in Newark.

Professor F. W. Johnson contributed an article to the *School Review,* on "The Department Head." It appeared in the September number.

Professor Elbert K. Fretwell is cooperating in an extension course at Coatesville, Pennsylvania, where he is lecturing on several phases of extra-curricular activities.

On October 9 Miss Maxie N. Woodring addressed a conference of teachers at Smithtown, New York, on the subject of "Criteria for Successful Teaching."

A series of addresses was delivered in Pennsylvania by Professor Fretwell at Harrisburg, Titusville, Norristown, and Pottsville. He spent three days at Decatur, Illinois, where he spoke before the City and County Teachers Associations.

Students in the course in measurements given last summer by Dr. Percival M. Symonds are engaged in testing during this fall in high school subjects, in order to obtain "difficulty norms." Several nearby schools, including the Friends School and Polytechnic Preparatory Country Day School in Brooklyn; the Pingry School in Elizabeth, New Jersey; the Julia Richman High School and the Horace Mann Schools in New York, are coöperating in the study. Members of the secondary research group are supervising this work in the schools.

The first meeting of the Secondary Group was held on October 12. Principals Henry Carr Pearson and Charles C. Tillinghast reported on an extended series of measurements made in the Horace Mann Schools by Dr. Cecile W. Flemming, giving special emphasis to the use made of the test results.

For the eighth year a short course of instruction for workers with boys is being given from October 12 to November 18. At the first meeting Professor Fretwell explained to the students how they might make the most of the course, which is given in coöperation with Boys' Club Federation.

Mr. Joseph S. Butterweck, a graduate student in secondary education, has been appointed research assistant in the Lincoln School to undertake an experiment in teaching the skills of study to high school pupils. This study is being conducted at the Horace Mann School for Boys.

The department has undertaken the construction of a prognosis test in modern foreign language as a part of The Modern Foreign Language Study under the auspices of the American Council on Education and with the coöperation of the United States Bureau of Education.

ALUMNI ACTIVITIES

THE TEACHERS COLLEGE ALUMNI ASSOCIATION OFFICERS

President: Mr. ZENOS SCOTT, Superintendent of Schools, Springfield, Mass.
First Vice-President: Dr. FANNIE W. DUNN, Assistant Professor of Education, Teachers College.
Second Vice-President: Dr. BESSIE LEE GAMBRILL, Professor of Education, Yale University, New Haven, Conn.
Recording Secretary: Miss AGNES BURKE, Instructor, Kindergarten Education, Teachers College.
Corresponding Secretary: Mrs. EDITH SWAN MOREY, Camp Hill, Pa.
Treasurer: Dr. R. G. REYNOLDS, Director, Bureau of Educational Service, Teachers College.
Members-at-Large: Mr. FRANK PICKELL, Superintendent of Schools, Montclair, N. J.
Miss ANNIE GRACE, 300 Park Avenue, Baltimore, Md.
Miss MARION SHERIDAN, 711 Orange Street, New Haven, Conn.
Alumni Trustees: Dr. EDWIN C. BROOME, Superintendent of Schools, Philadelphia, Pa.
Miss MERCY J. HAYES, 1063 Beaconfield, Grosse Pointe Park, Detroit, Mich.
Alumni Office: Russell Hall, Teachers College, 525 West 120th Street, New York City.

Address all communications to Rollo G. Reynolds,
Field Secretary, Teachers College, New York City.

TO THE SECRETARIES OF THE LOCAL CLUBS

September 25, 1925.

MY DEAR SECRETARY:

The Alumni Association can be of real service to the local Teachers College Clubs and the local clubs can be of definite assistance to the Alumni Association in several ways.

1. You will wish to have a member of the faculty speak at your club meeting whenever possible. Send us the approximate dates of your meetings far enough in advance so that we can try to send you a speaker. If you hear that a faculty member is to appear on a program in your vicinity at the time of your meeting, let us know and we will arrange to have him with you. If there is no one available in that way, we will make an effort to send you a special representative. In such a case the Alumni Association pays the traveling expenses, and the local club pays the hotel bills and other local expenses.

2. We want to print in the Alumni

columns of the TEACHERS COLLEGE RECORD as much interesting, up-to-date news of Alumni as possible. You can help us by sending in reports of your club meetings and by urging your members to send in news items concerning their own professional activities and those of their Teachers College friends. The reports of your club meetings should be about 300 words in length, giving the principal speakers and any items of particular interest.

3. You can increase the membership of your local club by obtaining new members for the Alumni Association. A new member of the Association from your district is automatically a new member of your club. Everyone who has studied at Teachers College even for one Summer Session should be a member of the Alumni Association. Every school should have a copy of the TEACHERS COLLEGE RECORD for reference purposes. Your local club may deduct thirty cents from every cash subscription turned in by you. Help your local club to grow!

With all good wishes for a most worthwhile year, I am,

Sincerely yours,
KATHERINE I. SHERWIN,
General Secretary

TO ALUMNI OF TEACHERS COLLEGE

JOIN THE ALUMNI ASSOCIATION

You need the Teachers College Alumni Association and the Alumni Association needs you. You need your Local Club and your Local Club needs you. You need the TEACHERS COLLEGE RECORD and THE RECORD needs news of your professional activities, the books you are writing, the lectures you are giving, the contributions you are making to your field. For $2.50 a year you may obtain membership in the Alumni Association and in your Local Club and receive THE RECORD published monthly from September to June. Join through your Local Club or send your dues to the Treasurer of the Alumni Association, 525 West 120th Street, New York City. Join the Alumni Association and help your Local Club to grow!

HOME-COMING DAY

Last year the date of the Annual Alumni Conferences was changed to February 12 to coincide with the "Home-Coming Day" of the entire University. Following this custom we will celebrate our second home-coming day February 12, 1926. Plan now to be with us at that time. Watch for further announcements in THE RECORD.

DR. SINGLETON HEADS NEW DIVISION IN GEORGIA

Dr. Gordon Singleton has been appointed head of a new division in the State Department of Education in Georgia to be known as the Department of Information and Statistics. Dr. Singleton is a graduate of the University of Georgia and for several years was superintendent of schools in various cities in Georgia. The past summer he was on the education staff of Emory University. He is the author of *The State's Responsibility for the Support of Education in Georgia.* Dr. Singleton received the degree of Doctor of Philosophy from Teachers College this year.

MR. J. E. WARREN GOES TO SPRINGFIELD, MASS.

Mr. Julius E. Warren has resigned his position as superintendent of schools at Gloversville, New York, to go to Springfield, Massachusetts, as assistant superintendent. It is interesting to note in this connection that Mr. Zenos E. Scott,

president of the Teachers College Alumni Association, is superintendent at Springfield. Mr. Warren received his Bachelor's degree from Dartmouth College in 1910 and his Master's degree from Teachers College in 1923. For several years he taught English in high schools at Schenectady, New York, and Brockton, Massachusetts, and in 1918 went to Brattleboro, Vermont, as principal. In 1921 he became principal of the High School at Gloversville, New York, and the following year was made superintendent.

DR. HALL-QUEST, DIRECTOR OF THE MILWAUKEE UNIVERSITY SCHOOL

Dr. Alfred Hall-Quest has assumed his duties as director of the Milwaukee University School, Milwaukee, Wisconsin. Under his direction the University School is to be made an experimental laboratory for supervised study.

Dr. Hall-Quest, who has studied also at Princeton University, University of Kansas, and University of Illinois, received the degree of Doctor of Philosophy from Teachers College this year. He enters his new work with a broad background of experience, having given courses in education at the universities of Illinois, Virginia and Cincinnati, and at Teachers College. While at Cincinnati he was also director of school affiliation and director of high schools.

Dr. Hall-Quest is the author of several books, the latest of which is *Supervised Study in Elementary Schools.*

MISS SIMPSON HONORED BY MARYLAND

Miss I. Jewell Simpson, formerly state supervisor of elementary schools in Maryland, has been promoted to the position of assistant state superintendent of public schools. Miss Simpson is a native of Maryland and received her Bachelor of Arts degree from the Western Maryland College. Later she did graduate work at Johns Hopkins University and at Teachers College. For several years preceding her work with the State Department Miss Simpson was supervisor of the elementary grades in Carroll County, Maryland. She has also given courses in methods and rural school problems at the Summer Session of Johns Hopkins University.

VOCATIONAL EDUCATION MEN IN PENNSYLVANIA

From the Pennsylvania Society for Vocational Education comes the following interesting news of former Teachers College men.

Mr. L. H. Dennis has been appointed deputy superintendent of public instruction with a major assignment in the field of vocational education for the State of Pennsylvania. He has been director of the Bureau of Vocational Education in Pennsylvania for the past five years. Mr. Dennis is a graduate of Pennsylvania State College, and has done graduate work at Cornell University, Bucknell University, and Teachers College. In 1922 Mr. Dennis was elected president of the National Association of State Directors of Vocational Education; in 1923, president of the Department of Vocational Education and Practical Arts of the National Education Association; and in the same year, president of the National Society for Vocational Education. He is a member of various national and state committees in connection with educational work, and has served with distinction in his various posts.

Dr. F. T. Struck, formerly assistant director of vocational education, has been promoted to the position of director of

the Bureau of Vocational Education to succeed Mr. Dennis. Dr. Struck took his Bachelor's degree at the University of Oregon, and the degrees of Master of Arts and Doctor of Philosophy at Teachers College. He has spent sixteen years as teacher, supervisor and administrator in vocational and practical arts education. For several years previous to his joining the Pennsylvania State Department of Public Instruction in 1920, Dr. Struck held a professorship at the Pennsylvania State College. His work with the State Department has given him an unusually fine preparation for his new position.

MR. LINTON, SECRETARY OF TEACHERS COLLEGE

On July 1 Mr. Clarence Linton took up his duties as secretary of Teachers College. In addition to the duties of the secretary, Mr. Linton will have charge of the admission of new students and will act in the capacity of general adviser to the student body. Mr. Linton has been superintendent of schools in Dakota City and Lyons, Nebraska, and more recently in Lawrence Township, New Jersey. He received his Master's degree in 1921 from the University of Nebraska and is a candidate for the degree of Doctor of Philosophy at Teachers College.

CLASS OF 1918

Corresponding Secretary, Helen Mildred Owen, 514-516 Cutler Building, Rochester, N. Y.

Marguerite I. Blancke was married May 19, 1923, to Ralph L. Hewitt. They are living in Ridgewood, New Jersey.

Mary Clayton received her M.S. degree in the department of vital economics at the University of Rochester in June, 1925.

Mabel I. Hutchings, who returned to Teachers College and received her M.A. degree and a Supervisor of Elementary Schools diploma in June, 1925, is now principal of Kensington School at Grand Rapids, Michigan. She writes, "This school is to be devoted to experimentation with a project curriculum. The school is new, and we are equipping it to make it as ideal as possible for the carrying out of the project philosophy. I am also to supervise an experiment in ten or twelve schools with teachers who are working on a project basis."

Inez Mae Lied did relief work in Turkey for two years following graduation from college. Since returning to America she has taught at Long Beach, California. On March 12, 1925, she was married to George I. Johnstone. Their home is in Hollywood, California.

Pattie L. Sinclair is teaching mathematics, accounting, and bookkeeping at Commercial High School, Atlanta, Georgia.

Mary E. Stevens is director of recreation and personnel at Grasslands Hospital, Valhalla, New York. She plans the recreation and social life for the employees of the hospital.

Sarah L. Treyz was married September 1, 1920, to Stanley Edward Smith. Their son, Stanley Edward Smith, Jr., was born March 20, 1923. They live in Cooks Falls, New York.

M. Elizabeth Westgate, after graduating from Teachers College, was instructor for three years in the home economics department at Western State College of Colorado. She then studied a year at Teachers College and received her M.A. degree in June, 1922. Since then she has been teaching clothing at Pennsylvania State College. This summer she taught in the home economics department at Western State College of Colorado.

Anna Hunt Welles is teaching drawing and English in the Technical High School at Scranton, Pennsylvania.

ALUMNI NOTES

News from the New Haven Club

It is with sorrow that the Teachers College Club of Connecticut notes the death on May 14, 1925, of Miss Jessie I. Scranton, for many years supervisor of kindergartens in New Haven. Miss Scranton had been a member of the club since its formation in 1913.

Dr. Annie Warburton Goodrich, dean of the School of Nursing, Yale University, returned August 21 from Europe, where she went as one of the American delegates to the International Council of Nurses.

Miss Ruth C. Paine, who has been on the staff of the Commercial High School, is now teaching in the High School of South Orange, New Jersey.

Miss Agnes Cox, Miss Iva Thomas, and Mr. Charles O. Atwater were appointed to the faculty of the Dr. Susan S. Sheridan Junior High School.

Miss Sabina H. Connolly, a member of the faculty of the New Haven High School, is the literary editor of the *New Haven Teachers' Journal.*

A summer normal school was conducted in New Haven by the Connecticut State Board of Education. Mr. J. L. Meader was the director. On the faculty were Miss Edith C. Barnum and Miss Alice E. Watson, of Teachers College; Miss Maud Keator, director of the Division of Special Education and Standards in Connecticut; Miss Vera M. Butler, instructor in the City Normal School in Bridgeport; Mr. Franklin Pierce, supervisor of secondary education in Connecticut; and Mr. George Shafer, principal of the State Normal School in Willimantic.

An article on "The Promise in Canadian Secondary Education" by Miss Marion C. Sheridan appeared in the April *Educational Review.*

Several former students of Teachers College have been appointed to the new Augusta Troup Junior High School. Among them are Miss Estelle Feldman, Miss Josephine Przelomiec, and Miss Florence Saltser.

Mr. Herman Renskers reports that he has again accepted a position with the Board of Foreign Missions, Reformed Church in America, and will return to Amoy, China, to take up his former work in Talmage College. He sailed with his family from San Francisco on October 17 on the S. S. President Cleveland.

Mr. and Mrs. William E. Winter (Allie Grace Reeves), (1907-08), will return to the United States next April for their second sabbatical year. Mr. and Mrs. Winter have had charge of the industrial work of the Yihsien Industrial School at Yihsien, Shantung Province, China.

Malcolm C. Spence (M.A. 1924) toured France and England this summer. He has returned to his position as head of the department of science at Polytechnic Preparatory Country Day School, continuing his studies at Columbia University.

Grace Allingham (B.S. 1911) is director of home economics at the State Teachers College, Fresno, California.

Anna Lowrey (M.A. 1922) has been teaching biology in the Stockton, California, High School since February, 1925.

Minnie Jenkins Smith (M.A. 1922) is now head of the department of romance languages, Boise High School, Boise, Idaho.

W. H. Bristow (M.A. 1922) has accepted a position as assistant director of

secondary education in Pennsylvania. He has been assigned to a study of the small high schools. They are now preparing a manual of organization and administration for these schools.

Miss Emma B. Welty (B.S. 1924) is teaching in Cleveland Heights, Cleveland, Ohio.

Miss Gladys I. Barry (B.S. 1925) is teaching English in the High School in Newburyport, Massachusetts. Miss Welty and Miss Barry spent the summer in Europe after the Edinburgh meeting.

Miss Ruth Spence (Ph.D. 1925), formerly instructor in psychology at Smith College, has been promoted to the rank of assistant professor in the department of education. Miss Jane Dorsey (M.A. 1923), instructor in speech in the same institution last year, has been advanced to the rank of assistant professor of speech.

Miss DeRossette Thomas (M.A. 1925) has been appointed research assistant in child psychology and child training at Merrill Palmer School, Detroit, Michigan.

Miss Mary Humphrey (B.S. 1924) has a position as teacher-in-training in chemistry at the Walton High School, New York City.

Fletcher Harper Swift (Ph.D. 1905) writes that the University of Minnesota has ready for distribution Volumes III and IV of Studies in Public School Finance, which were prepared under his direction. Dr. Swift was formerly of the College of Education of the University of Minnesota, and is now of the School of Education, University of California, Berkeley.

Volume III, *The Middle West,* contains studies of public school finance in Illinois, Minnesota, South Dakota, together with a supplement of public school finance in Alaska. Volume IV, *The South,* contains studies of public school finance in Alabama, Arkansas, Oklahoma and Tennessee.

The four volumes of the present series cover no less than one-fourth of the states in the Union, and constitute a notable contribution to the scientific literature in the field of public school finance. Copies of these volumes may be secured by addressing the Librarian, University of Minnesota.

ALUMNI APPOINTMENTS RECENTLY REPORTED

The following appointments have been reported by the Bureau of Educational Service, Teachers College:

Abbihl, Gertrude M.—Supervisor of art, Elementary Schools, Danbury, Conn.

Acker, Jessie E.—Instructor in foods and nutrition, North Texas State Teachers College, Denton, Tex.

Adams, Mrs. Evelyn C.—Educational adviser, Garland School of Home Making, Boston, Mass.

Anderson, Dorothy—Head of English department, Senior High School, Pocatello, Idaho.

Anderson, Rowena—Director of girls' dormitory and teacher of foods and cookery, Kamahamaha School, Honolulu, Hawaii.

Andrews, Laura E.—Instructor in foods and cookery, Ballard School, Y. W. C. A., New York City.

Annin, Pauline E.—Teacher of sophomore English and supervisor of school paper, Maine Township High School, Des Plaines, Ill.

Arneson, Ruby—Teacher of art, State Normal School, Slippery Rock, Pa.

Atkin, Lillian M.—Assistant to principal, Oberlin School, New York City.

Baie, Emma—Associate professor of home economics, Purdue University, Lafayette, Ind.

Bailor, Edwin M.—Assistant professor of psychology, Dartmouth College, Hanover, N. H.

Baker, Ada M.—Teacher of arithmetic methods, College of Education, Cleveland, Ohio.

Baldridge, Ruth—Teacher of art, Public Schools, Paterson, N. J.

Baldwin, James W.—Associate professor of education, University of Texas, Austin, Tex.

Barker, Corrinne—Teacher of History and civics, Groton High School, Yonkers, N. Y.

Bartlett, Marion R.—Professor of physical education, State Teachers College, Fredericksburg, Va.

Bartlett, Willard W.—Assistant president, Carleton College, Northfield, Minn.

Benson, Edna G.—Assistant professor of design, University of Nebraska, Lincoln, Neb.

Bishop, Elizabeth L.—Instructor in biology, State Teachers College, Santa Barbara, Calif.

Blackburne, Anita G.—Instructor in elementary education, Temple University, Philadelphia, Pa.

Blank, Inez R.—Teacher of English, High School, Fort Lauderdale, Fla.

Bloss, M. C.—Superintendent, City Schools, Seward, Neb.

Blundell, Sue C.—Instructor in textiles and clothing, Oklahoma Agricultural College, Stillwater, Okla.

Boughton, Jesse Scott—Teacher of mathematics, Adelphi Academy, Brooklyn, N. Y.

Brown, Ida A.—Assistant professor of English, Keystone State Normal School, Kutztown, Pa.

Brown, M. Ruth—Kindergarten principal, State Normal School, Oneonta, N. Y.

Brugger, M. Elizabeth—Nursery school director, Kindergarten Primary Training School, Cleveland, Ohio.

Bullock, Florence May—Teacher of natural science, High School, East Orange, N. J.

Burton, Jesse P.—Teacher of mathematics and science, Rosewood High School, Rose, N. C.

Burton, Georgia W.—Head of department of home economics, Staff of State Experiment Station, Auburn, Pa.

Burwash, Ruth—Instructor in home economics, Drexel Institute, Philadelphia, Pa.

Byrne, Lee—Professor of secondary education, Louisiana State University, Baton Rouge, La.

Callaway, Mary—Teacher of senior English and journalism, Russ Senior High School, San Diego, Calif.

Campbell, Sadie—Assistant principal and adviser of girls, North High School, Des Moines, Iowa.

Campsen, Herman M., Jr.—Teacher of science, Jefferson Junior High School, Meriden, Conn.

Carpenter, Weston W.—Professor of the teaching of physical science, George Peabody College for Teachers, Nashville, Tenn.

Caruthers, Thomas J.—Supervisor of rural school practice and teacher of mathematics, Maryland State Normal School, Salisbury, Md.

Chamblin, Julia V.—Teacher of grade three, Cliffside School, Cliffside, N. J.

Chaplin, Calista E.—Associate professor of Latin and Greek, Hillsdale College, Hillsdale, Mich.

Chapman, A. Irene—Lecturer in mathematics, Macdonald College, Quebec, Canada.

Coil, Lloyd Langdon—Superintendent of schools, Bramwell, Mercer County, West Va.

Cole, Dorothy M.—Director of physical education, Agricultural College, Fargo, N. Dak.

Coleman, J. H.—Departmental teacher, The Buckley School, New York City.

Collier, Mrs. Paul—Teacher of eighth grade, Public Schools, Garden City, L. I.

Colvin, Zella E.—Instructor in teaching of mathematics, University of Kansas, Lawrence, Kan.

Compton, J. W.—Principal of Junior High School, Tampa, Fla.

Conyne, Marguerite—Instructor in and supervisor of class room teaching and kindergarten primary methods, Maryland State Normal, Towson, Md.

Corson, Florence V.—Teacher of rural education, State Teachers College, Fredericksburg, Va.

Cowen, Philip A.—Instructor in education, Dartmouth College, Hanover, N. H.

Cox, L.—Teacher of English and mathematics, Park School, Cleveland, Ohio.

Crangle, Bertha A.—Teacher of mathematics, High School, Dunkirk, N. Y.

Crawford, Sadie B.—Director of kindergarten education, State Normal School, Buffalo, N. Y.

Crowley, Kathleen F.—Director of community recreation, Waterbury, Conn.

Davidson, Leonora B.—Head of physical education department, Mission High School, San Francisco, Calif.

Davis, Julia—Teacher and supervisor of rural education, State Normal School, Danbury, Conn.

Davis, Mary Dabney—Specialist in kindergarten-primary education, Bureau of Education, Washington, D. C.

Dawson, Elizabeth Anne—Teacher of Spanish and Latin, Central High School, Tulsa, Okla.

Dawson, Marjorie E.—Instructor in primary methods and primary supervisor, State Normal School, Bellingham, Wash.

Day, Inez P.—Dean of women, Conservatory of Music, Cincinnati, Ohio.

Diggins, Elmer F.—Instructor in psychology, University of Buffalo, Buffalo, N. Y.

Dixon, Maloise S.—Assistant director of physical education, Central State Normal School, Lockhaven, Pa.

Donaldson, Dorothy M.—Supervisor of physical education, Public School, Clairton, Pa.

Doran, L. A.—Associate professor of political science, University of Maine, Orono, Me.

Egan, Eula P.—Associate professor of psychology and English, State Normal School, Florence, Ala.

Earley, Dorothy—Assistant professor of physical education, Alabama College for Women, Montevallo, Ala.

Ehlers, Emma C.—Instructor in education, Women's College, University of Delaware, Newark, Del.

Eichler, Gertrude—Teacher of fine arts, Public Schools, Edgewater, N. J.

Erwin, Mabel D.—Instructor in home economics, Florida State College for Women, Tallahassee, Fla.

Evans, Grace E.—Director of department of public school music, Combs Conservatory, Philadelphia, Pa.

Exton, Bess—Nutrition worker, Island of Kauai, Hawaiian Islands, T. H.

Farwell, Willard G.—Teacher of printing, Senior High School, Watertown, Mass.

Fister, Herbert C.—Teacher of mathematics, Dwight School, New York City.

Flamson, Gladys E.—Instructor in foods, Illinois State Normal University, Normal, Ill.

Flinn, Ruth—Supervisor of special classes, Public Schools, Savannah, Ga.

Frank, May C.—Home management, University of Nebraska, Lincoln, Neb.

Gaumnitz, Walter H.—Head of social science department, Eastern State Teachers College, Madison, S. D.

Goodskey, Alex. J.—Director of Americanization, Torrington, Conn.

Gordon, G. P.—Teacher of social science and athletics, City High School, Ocala, Fla.

Gordon, J. M.—Dean, Texas State Technological College, Lubbock, Tex.

Gordon, W. E.—Professor of biology and logic, Southern College, Lakewood, Fla.

Grundy, Marjorie Helen—Teacher of geography in Junior High School, Public Schools, Verona, N. J.

Gulley, Elsie E.—Assistant professor of history, Wheaton College, Norton, Mass.

Gushee, R. Cynthia.—Teacher of stenography and typewriting, High School of Commerce, Yonkers, N. Y.

Hall, Florence—Head of English department, Anna Head School, Berkeley, Calif.

Hall-Quest, Alfred L.—Director, Milwaukee University School, Milwaukee, Wis.

Harling, Lester C.—Associate professor of history, State Teachers College, Nacogdoches, Tex.

Harris, Miss Calhoun—Head of fine arts department, College of El Paso, El Paso, Tex.

Hemsing, Amy M.—Assistant teacher of Latin, Seward Park High School, New York City.

Hentz, Olivia W.—Manager, Twentieth Century Club, Buffalo, N. Y.

Herring, John P.—Associate in research, Institute of Child Welfare Research, Teachers College, Columbia University.

Hitchcock, Paul E.—Teacher of education, State Normal School, Keene, N. H.

Howard, Lynn-Ray—Instructor in related arts, Missouri University, Columbia, Mo.

Hughes, William L.—Director of physical education and athletics, DePauw University, Greencastle, Ind.

Humiston, Dorothy—Instructor in physical training, State Teachers College, Cedar Falls, Iowa.

Hunsicker, Lilian—Director of department of measurements, State Normal School, Milwaukee, Wis.

Johnston, Eula A.—Rural school supervisor, Baldwin County, Chattanooga, Tenn.

Johnston, Myrtle L.—Director of school of home economics, Russell Sage College, Troy, N. Y.

Jones, Orpha—Cafeteria director, Y. W. C. A., Flint, Michigan.

Keithan, Elizabeth F.—Instructor in geography, State Normal School, Clarion, Pa.

Keller, Pearl W.—Instructor in physical education, Harlem Branch Y. W. C. A., New York City.

Killey, Lorene—Demonstration teacher and lecturer, State Teachers College, San Jose, Calif.

King, Cora E.—Teacher of English in model school, Jamaica Teacher Training School, Jamaica, L. I.

Knobel, Amalie—Instructor in rural education, Normal Schools, New Haven and New Britain, Conn.

Latimer, Ruth L.—Elementary supervisor, City Schools, Cheyenne, Wyo.

Leighton, Frances—Director of home economics, Sweet Briar College, Sweet Briar, Va.

Lewis, Gwena—Instructor in physical education, Porto Rico University, Porto Rico, West Indies.

Littlefield, Ethel F.—Head of Château Français and assistant professor of French, Middlebury College, Vt.

Long, Alma—Assistant professor of home economics, Wittenberg College, Springfield, Ohio.

Long, Edward L.—Elementary school principal, Little Falls, N. Y.